

33. TOTHILL STREET, WESTMINSTER, LONDON, S.W.1.

Telephone: WHItchall 9233 (20 lines) Telegrams: "Trazette Parl London"

BRANCH OFFICES

GLASGOW: 139, Bothwell Street, C.2 Central 4646

NEWCASTLE-ON-TYNE: 21 Mosley Street Newcastle-on-Tyne 22239

MANCHESTER: Century Insurance Building, St. Peter's Square Central 7667-8-9

BIRMINGHAM: 90, Hagley Road, Edgbaston Edgbaston 2466—3728—3732

LEEDS: 70, Albion Street Leeds 27174

BRISTOL: 20, Victoria Square, Clifton Bristol 33873

Annually £5 by post Single copies, Two shillings

Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Editor: B. W. C. Cooke, Assoc. Inst. T.

Vol. 113]

FRIDAY, DECEMBER 16, 1960

[No. 25

CONTENTS

	PAGE
Editorial Notes	697
Fares Up Again	698
Private versus Public Transport	699
The Need for Communication	700
Diesel Traction Economics in the U.S.A.	700
Letters to the Editor	701
The Scrap Heap	703
Overseas Railway Affairs	704
Bulk Freight Handling in New South Wales	705
The Future of the North Eastern Region	706
Large Bogie Tank Wagons	709
Pullman Services on British Railways	710
Axle Fatigue Test Machine	714
Electric Traction Section	715
Personal	719
New Equipment and Processes	722
News Articles	724
Contracts and Tenders	726
Notes and News	727
Railway Stock Market and Official Notices	728

Unease in the Lords

THE long debate on December 7 in the House of Lords on a motion by Lord Morrison, calling attention to present and future problems of transportation within the United Kingdom, gave clear evidence of the grave disquiet with which the Lords view the present plight of British Railways. The Government came under heavy fire as member after member rose in criticism of its present attitude to the railways. The debate showed clearly that, despite Government insistence to the contrary, the House felt strongly that there was a Government bias in favour of road transport. The criticism came from all parts of the House and brought together many points which, although they have been made separately from time to time, so far have not been arraigned *in toto* on any one occasion in either of the Houses. It was strongly felt that there should be integration of transport, that there should be a definite five-year plan for the railways, that a firm line should be adopted in regard to modernisation—particularly electrification—in that there should be no shilly-shallying once plans had been approved and put in hand. There was a full realisation of the heartbreak at present

being suffered at all levels on the railways—a heartbreak which, if not eased, would result in the disintegration of the entire system. On the more material plane, there was much discussion on the very serious effects to industry—not the least the electrical industry—which the present uncertainty was causing and would cause in the future, if present trends continued. It is very difficult to understand the attitude of the Government in this matter: what can it hope to gain by persisting in a policy which is denounced as uneconomic by industry, unmoral by railwaymen, and unworkable by the general public? The time is past when blame can be attached to individuals, for these can merely hide in the skirts of the official party: blame must now fall squarely on the shoulders of the Prime Minister and his entire Cabinet. Let the Government beware: the British have a deeply-rooted affection for their railways, however much they may grumble. If by Government action those railways are destroyed, the nation will remember who was responsible and will retain that memory when election times come round.

Management Development Schemes

THE training of recruits for management in industry is much to the fore at the present time, and a survey of the training schemes organised in industries of varying sizes is at present being undertaken by the British Institute of Management. The committee responsible for this survey has just issued an interim report giving the results of an investigation of the practices followed by some 30 firms. The objectives in management training and development have been examined in detail, as well as the measures adopted by various companies to evolve a systematic plan of development for managers. The report includes a description of the methods used for assessment, recruitment, and selection of candidates for management. In all, it presents a picture of the progress so far achieved in the establishment of sound methods of management training, and should give a valuable insight into this important field of industrial training. The chairman of the survey committee is Mr. A. R. N. Roberts, of Imperial Chemical Industries, and its membership is drawn from firms covering a wide field of industry.

Indo-Pakistan Rail Transit

AGREEMENT has been reached on the procedures for the grant of transit facilities for the movement of civilian rail traffic between Pakistan and India at the three-day rail talks between the delegations of the two countries held recently in Rawalpindi. Under the agreement it is understood that some passenger coaches will run from Hyderabad in West Pakistan to Ishurdi in East Pakistan through India, and some coaches will run between Assam and West Bengal through East Pakistan. If these arrangements work satisfactorily, the two Governments may later agree to direct running of trains through each other's territories. The joint communications issued on the conclusion of the talks stated that "an agreement was reached on the procedure to be adopted for the grant of transit facilities for the movement of civilian rail traffic of each country across the other." The direct rail link between West and East Pakistan across 1,200 miles of Indian railway track would cut existing passenger fares to one-fourth. The two delegations were headed by Messrs. S. A. Suhrawardy and Karnail Singh, Chairman of the Railway Boards of Pakistan and India, respectively.

Overseas Railway Traffics

EAST African Railways & Harbours approximate railway revenue for the month of October, 1960, amounted to £1,604,000 compared with £1,614,000 in October, 1959. Receipts from inland marine services fell by £14,000, from livestock services by £3,500, from hotels and catering services by £3,000, from road services by £3,000 and from miscellaneous services by £2,000. - Railway goods receipts increased by £11,000 and earnings from passenger and other coaching traffic increased by £4,300. Canadian Pacific Railway revenue for October amounted to \$39,001,718 compared with \$39,068,157 in October 1959, a decrease of \$66,439. Expenses amounted to \$35,927,915 (\$35,946,250) resulting in net earnings of \$3,073,803 (\$3,121,907). Aggregate net earnings from January 1 to the end of October amounted to \$25,406,265

(\$27,358,864). Earnings of the West of India Portuguese Guaranteed Railway Co. Ltd., continue to increase in comparison with last year. At November 20, total railway earnings amounted to contos 774. This was an increase of contos 262 compared with the corresponding period of 1959. The improved figures are mainly attributable to increased goods traffic.

C.T.C. in Rhodesia

STEADY progress is being made by Rhodesia Railways with its centralised traffic control programme. The latest section to be brought under C.T.C. working is that between Makwiro and Gatooma, 49 miles. The 45-mile section between Lochinvar (Salisbury) and Makwiro has been in operation since July. This means that the entire section from Lochinvar to Gatooma, 94 miles, is now operated under C.T.C. The section from Heany to Gwelo, 93 miles, has been under C.T.C. working for some years, which means that once the Gwelo-Gatooma section of 89 miles has been completed the entire line from Heany to Salisbury will be C.T.C. controlled. On the North line C.T.C. is in operation between Bulawayo and Thompson Junction (218 miles) and from Matetsi to Livingstone (41 miles). It is expected that the gap between Thompson Junction and Matetsi (42 miles) will be completed by the end of the year which means that the entire Bulawayo-Livingstone section will be under C.T.C. control.

Pullman Services in Great Britain

THIS week Mr. F. D. M. Harding, Managing Director of the Pullman Car Co. Ltd., outlines the developments of his company since the British Transport Commission acquired the whole of its equity in 1954. These developments include two which have never previously occurred in the history of the company and which, therefore, are unpredictable in their eventual effect. They are the new appearance and layout of the diesel Pullmans and the absorption into Pullman services of men trained under another system. These factors are of importance considered in the light of the Commission's observation concerning the goodwill associated with the name of Pullman, for from them it is obvious that present-day Pullman services are not identical with their forerunners in these particular respects. The new services are proving very successful, and there is no doubt that the staffs working them are proud of the reputations they are in process of developing; nevertheless, that the reputations are new, though based on an older tradition, must be remembered now and for some while ahead. The continuance and enhancement of the older reputation rests squarely on the shoulders of the new staff.

Road Competition in Western India

DURING the past two years serious road competition has been threatening certain traffics and areas on the Central Railway of India. By March, 1959, as much as 74 per cent of the cotton traffic from places on the Bhusaval Division to Bombay was being moved by road. General goods from Bombay to that area and to the Khandesh and Vidarbha areas and to Southern Railway stations via Poona was also similarly affected. As a counter-measure cotton specials are now being run from stations on the Bhusaval Division to Bombay, with deliveries within 72 hr. of loading. Also a fast goods service known as the "Vidarbha Express" is being run daily to ensure delivery within from 48 to 72 hr. (excluding the day of loading) at stations as far afield as Bangalore, Akola, Amraoti and Khamgaon. Already by March, 1960, the percentage of cotton carried by road from the Bhusaval area to Bombay had dropped from 74 to 56 per cent as a result of the railway measures taken.

Decision on London-Crewe Electrification

DELAY in a.c. electrification of the London to Crewe main line of the London Midland Region, rather than cancellation of the project, might result from any pruning of expenditure. This was hinted in Government circles last week. To abandon the scheme, leaving the already electrified Crewe-Manchester section isolated, would be folly. The public would be deprived of the improved services it has been led to expect; the electric, locomotive, and associated industries would lose orders of great value, not least in aiding export

trade; and there would be waste of effort and material. Delay in completion also would be most unfortunate. Electrification work has necessitated slowing down some services and reducing others, including the Euston to Birmingham expresses *via* Coventry. There has been unpunctuality. The sooner the job is finished, the better. The defects in service are causing criticism, much of it undeserved. They are lowering the morale of railwaymen eager to achieve standards possible only after the whole scheme is completed. No final decision had been announced as we went to press, but the White Paper giving the Government's proposals for the future of the railways is to be published before Christmas.

Type "4" Diesel Locomotives Built at Crewe

CONSTRUCTION has begun at Crewe Works, British Railways, London Midland Region, of a batch of 80 Type "4" 2,500-h.p. diesel-electric locomotives. An illustration of the first to be completed there, No. D68, appears on page 727. One external recognition feature which distinguishes it from the 10 original 2,300-h.p. 1Co-Co1 locomotives built at Derby, where the design and development work took place, is the fitment of four-digit route-indicators at each end. These are in boxes of two digits each, separated by the space allocated to the communication doors, although the latter are sealed and will not be used. Power is by a Sulzer 12LDA28-B 12-cylinder double-bank engine built by Vickers Armstrong (Engineers) Limited, and with Crompton Parkinson electrical transmission. The increase in power from 2,300 to 2,500 b.h.p. at the same maximum rated engine speed of 750 r.p.m. has been obtained, without any increase in thermal stresses, by the adoption of cooling for the air-inlet charge from the single exhaust-driven turbocharger. The charge coolers use the same water circuit which supplies the oil cooler and the cylinder jackets and heads.

Fares up Again

LAST month, the Transport Tribunal authorised the British Transport Commission to increase London Transport fares between 7d. and 1s. 11d. by 1d., with some higher increases for longer distances; to charge about 5 per cent more for Underground season tickets, and to raise some early morning fares. These increases will be introduced on January 15 next year. This permission followed an earlier authorisation, given last March, to increase fares to an extent designed to bring in £2½ million a year to meet the increased costs which had been incurred up to that time. These two increases were approved under the procedure whereby temporary authorisation of higher fares to meet higher costs is given subject to confirmation at a later public hearing of the application. Together, they will yield roundly £5½ million a year.

London Transport now states that these two increases will not be sufficient to meet the whole of its increased wages and other costs, including interest charges, and also produce the necessary working surplus to which the Tribunal has agreed and which every sound undertaking requires to maintain its solvency. A further application to the Transport Tribunal therefore has been made to add to the increases due to come in operation on January 15 one penny on London Transport ordinary fares of 8d. (three miles) and upward, but retaining the 8d. fare for journeys between two and two and a half miles, and to increase London Transport season ticket charges by a further 5 per cent. These increases are expected to yield in a full year roundly £2 million to revenue. Increases in wages and costs during 1960 have seriously affected the financial position of British Railways, and the British Transport Commission also is applying for powers to increase ordinary fares and season-ticket rates on the London, Tilbury, & Southend Line, and day returns and season tickets on other British Railways London lines. This will maintain the correspondence between fares and season-ticket rates on these lines and London Transport—the accepted policy for many years. For season-ticket rates outside London there is no additional charging power available, and the Commission will seek power to obtain "headroom" on season-ticket rates of 20 per cent above existing authorised maxima. If approved, there will, therefore, be a similar headroom to that already existing for British Railways ordinary fares outside the London area.

The higher fares already approved for introduction in

January remain to be confirmed by the Tribunal—that is, they are subject to confirmation at the public-hearing of the application. The London Transport Executive cannot yet state when it would implement its new increases, if these are granted by the Tribunal. It might be necessary to do so before next summer, although everything would continue to be done to improve finances by other means.

London Transport has been forced to seek further revenue because of the increase in its wages bill since January 1 this year of about £6½ million a year. Extra payments arising from National Insurance legislation will add a further £700,000 to the bill, and the prices of materials are rising. In addition to this, the Executive is engaged on vast improvement works, particularly on the railway system. Half the Underground rolling-stock and the whole of the trolleybus system are in course of replacement—both are over-age—and the Executive also is carrying out an important improvement programme on the Metropolitan Line north of Harrow. Over-age electric power plant also must be replaced; this expenditure on replacements and improvements will add, in 1961, another £500,000 to the annual finance charges, representing interest on the additional capital being invested in the undertaking. To a large extent, this increase has occurred because new equipment now has to be bought at prices several times greater than those paid for equipment now worn out.

Taking all these headings together, an additional £7½ million to £8 million has to be found annually out of revenue, and the largest part of it rises from the need to maintain and improve the passenger services, rail and road.

For some time, London Transport has been seriously short of staff, particularly drivers and conductors for buses and coaches. It has not been possible to man substantial numbers of buses in the garages, this, with acute traffic congestion, has caused road services to be irregular and deficient, despite the fact that the staff has willingly worked overtime and on rest days.

This situation did not catch the Executive unawares. There were nearly 2,800 vacancies in the road services operating departments by the end of 1959, and discussions had already been opened with the Transport & General Workers' Union on a bonus scheme for drivers and conductors. The scheme was devised to improve the quality of service and to increase the earnings of the staff by a system of additional payments based on results. By March, 1960, with a steadily mounting shortage of staff, it was clear that quick action had to be taken, and a straight wage increase was negotiated. In the summer, the bonus scheme proposal was pursued by the negotiating committee of the union, but although recommended by the Committee, it was twice turned down by delegate conferences of garage representatives. Meanwhile, the staff shortage grew worse, rising to a peak of over 5,000 in September last; so, unavoidably, did the deficiencies of the service.

In October, therefore, a new wages settlement was made which provided for a wage increase of 18s. a week, together with other payments and revised conditions of service which together amounted to an addition of some 25s. a week to the busman's pay packet. As a result of the additional earnings, and helped by a slightly easier employment situation in London, the staff situation has improved, and the volume of bus services operated on the roads has correspondingly improved. Since the end of October, London Transport has gained some 600 drivers and conductors on the Central Road Services. For the present, there seems to be no reason why this trend should not continue.

In terms of actual buses running on the roads, this improvement means that a quarter of a million miles more a week are being run now by Central Buses than for the middle of October. The policy of improving staff earnings has been having some success in bringing the bus services back toward a standard which the public are entitled to expect.

This has cost money and has added substantially to working expenses. The choice has been between paying wages which would keep men in and attract employees, or allowing the services to deteriorate. The staff situation has not been easy on the Underground, and this is a situation which also seriously affects British Railways in certain areas, including London. The Executive has applied to its railway staffs the consequences of the pay review on British Railways, and that has also added to working costs.

London Transport has told the public that it will revise the red bus schedules early in the New Year so as to give a more

regular service with available buses and crews. This has been interpreted to mean that services will be cut, but that is wrong; all available buses will be run, but they will be spaced out.

London Transport does not think that an inquiry into the public transport services of London would tell anybody anything that is not already known. There has been no change in London Transport's policies since the detailed inquiry was made under the chairmanship of Mr. S. P. Chambers, now Chairman of I.C.I. What has happened is that the acute staff shortage, coupled with traffic congestion, is preventing the Executive from giving the public the services which it plans to run.

Summarised, the view of the Executive is that the London public is entitled to a reliable service, and it is London Transport's duty to provide it. There must be enough staff, paid wages adequate to recruit and retain them. The equipment must also be kept up to date by replacement when it is worn out, wherever practicable by better equipment. The Executive intends to improve services and keep out of the red in doing so.

Private versus Public Transport

IN spite of the substantial expansion in private car travel over the last ten years, the number of passengers carried by rail to the Central London area during the peak hours has actually increased, even to the extent of more than compensating for the loss of passengers sustained by public road transport in the same period. This, and many other interesting facts, are brought out by Mr. J. M. A. Smith in his paper "The Impact of the Motor Car on Public Transport," read at the meeting of the Institute of Transport earlier this week.

Mr. Smith began by comparing the changes which have taken place in the various categories of passenger transport, taking numbers of vehicles in use, during the last 50 years. The number of cars in 1959 is nearly 2½ times the 1949 total, whereas a slow decline has occurred in the number of railway passenger vehicles over the same period, with an even steeper fall in the fleet of public road vehicles. This information does not by itself indicate the real position and, to complete the picture of the development of land passenger transport, it is necessary to take into account the usage of the available vehicles. On a passenger-mile basis, all travel has increased by 27 per cent within the past decade. In 1951 the public transport share of the total was more than two-thirds, but is now only a half. Over the same period private transport has more than doubled, while public transport has declined by 6 per cent. Rail transport accounts for about one-third of all public transport, and, overall, shows a slight improvement in its position. In the London Transport area, both rail and public road travel have declined, the latter to the extent of 28 per cent.

The paper contains an interesting analysis of the causes of the tremendous growth of private car travel at the expense of public passenger transport. It is stated that, on the average, each private car covers 8,000 miles a year, which is partly accounted for by the fact that some 40 per cent of private cars are intensively used for business purposes. Although an increase in rail travel to London has taken place during peak traffic periods, an overall decline of 15 per cent has occurred in London rail travel which suggests that the fall in traffic during off-peak hours is even greater. Even if all the additional private car travel has been made at the expense of public transport, Mr. Smith suggests that it only partly contributes to this result, and that other factors, such as reduction of Central London population, and less travel in the evenings, are also responsible for the decline to varying degrees.

In country districts where, because of the greater dispersion of population, public transport is necessarily less frequent and less accessible, the private car has made even greater inroads. The ratio of cars per given number of inhabitants is higher in the country than in the towns, and cars are used intensively for all purposes in the country. Local surveys show that where branch lines and country stations have been closed, bus services have only benefited to the extent of absorbing about half the traffic previously carried by rail. The other 50 per cent turn over to private car transport or change their travel habits.

Mr. Smith points out that the attraction of car ownership stems primarily from its characteristics of freedom and independence conferred on its owner. Freedom from the discipline of a timetable allows choice of starting time and route, though unknown road conditions and uncertain

parking facilities at the destination may operate to the disadvantage of private car travel. Luggage problems are also eased.

On the question of costs, the author asserts that the acquisition of a car ranks high, in the opinion of most families, in the list of present-day necessities, even though its purchase may entail considerable sacrifice. Once the problems of meeting the initial costs have been surmounted, the car owner is usually only concerned with the actual cost of travel, that is, of the amount of petrol needed for a particular journey. When the car carries the driver only, the cost may be comparable with that of public transport, but, with one or more passengers, it is seldom that public transport can compete on this basis.

With regard to the future, the motor industry estimates that the rate of expansion of private car travel will result in a car population of 13½ million by 1975, an increase of nearly 2½ times the present figure. The fundamental effect which this increase will inevitably make on civilised life in this country is receiving growing recognition and the author considers that any plans to deal with the problem must be based on universal car ownership within the next 20 years. So far as travel costs are concerned the suggestion is put forward that, while public transport fares should be based on true cost and a fair return, the cost of parking or garaging cars in cities should be related to land and constructional values. Thus the nearer the car is taken to the central area, the higher will be the cost of accommodating the car.

On the future of the railways, Mr. Smith refers to the multiplicity of committees which have been set up to consider and pronounce on this subject, and considers the present time inappropriate to judge the relative responsibilities of rail and road transport. But he suggests that the rigid relation between rail fares and mileage may well be one of the causes of the loss of traffic to the roads, and calls for greater flexibility, realism, and courage in determining fares to place the railways on an economic footing. In his opinion, the commuting and long-distance main-line traffic will, in the future, not only continue to hold their own, but will improve under the modernised conditions on the railways, and the dramatic results of the recent introduction of many new electric and diesel services are mentioned in support of this view. On the other hand, the further closure of uneconomic lines and services resulting in a considerably reduced railway system is considered to be inevitable.

The Need for Communication

ELSEWHERE in this issue, Mr. F. C. Margetts, Assistant General Manager (Traffic), North Eastern Region, British Railways, outlines the pattern of traffic in his Region from the 'thirties to the present, and examines the probable nature of future trends. At the conclusion of his article, Mr. Margetts stresses the importance of the spread of this information among all interested parties. Mr. Margetts has a very good point here—it is vital that not only the users of rail services, but also railwaymen in his own and other Regions, the headquarters at Marylebone Road, and Government departments should have a full awareness of the enormous progress which is taking place not only in the North Eastern Region, but in all the Regions of British Railways. It is always essential for morale that efforts do not go unappreciated, but today, when so much muddled, ill-informed, and downright erroneous criticism is made concerning British Railways, it is a matter of life and death.

Mr. Margetts clearly shows that British Railways, as epitomised by his own Region, is modern in outlook and impatient to discard old methods where these no longer suit current trends. There is no sign of the ostrich in his attitude toward present and probable future traffic. Like other Chief Officers in other Regions, he knows that sentiment can only safely be indulged with a full purse—although, as a railwayman, he regrets the closure of an unremunerative line or station, he is aware that several regrettable closures are preferable to one of total bankruptcy. He also knows that the successful railwayman must be one jump ahead of current trends of traffic and, for this to be possible, that he must be in constant touch with the world of the railway user. The North Eastern Region, pioneers in many other railway fields, has again taken the lead in the matter of communication with the public. Its Open Forums, particularly in their inception, have required the

exercise of great courage in their implementation, and their success is attested by the full attendances which occur on each occasion of their holding.

Courage also is to be seen in the forthright manner in which certain adverse traffic trends are described in Mr. Margetts' article, and in the way in which he and his staff are meeting the challenges presented by those trends. No energy is wasted where the downward movement is logical and irreversible: instead, efforts and expenditure are directed in completely positive directions; where, for instance, a new approach can revivify with effect, or where a young and struggling traffic can be nourished and consolidated.

Throughout this year we have published twelve other articles written by officers of the North Eastern Region. Each of the authors was the man who is (or was—some have been promoted since their articles appeared) actually in charge of the work described in his article. Each account showed that morale is high in the North Eastern, and that the coming of modern equipment and increased delegation of powers of decision has brought a new faith to the men who are entrusted with its operation. This is a good trend, and one we are glad to be able to record. Nevertheless, in our opinion, the most significant and valuable aspect of North Eastern operation today is represented by the keenness with which its officers face the public direct in the Region's Open Forums, and the friendly willingness with which the public flocks to meet its providers of railway facilities, both passenger and freight.

Diesel Traction Economics in the U.S.A.

IT has often been said that statistics can be used to prove most things. If some well-established financial juggling methods are used in combination with statistics there should be no limit to the variations possible in the assessment and comparison of results obtained with different forms of motive power for railways.

Mr. H. F. Brown, in his paper, "Economic results of diesel-electric motive power on the railways of the United States of America," presented recently at a meeting in London of the Institution of Mechanical Engineers, has produced figures which could re-open what has been regarded as a closed issue and of but academic interest in the United States since about 1950, namely, the question of steam *versus* diesel operating economies. The author, who is a Fellow of the American Institution of Electrical Engineers, and Consulting Engineer to Gibbs & Hill Incorporated, New York, has based his study mainly on data published by the Interstate Commerce Commission in its annual "Statistics of railways in the United States." The broad conclusion reached is that the all-embracing economies claimed for diesel-motive power, such as the production of a 30 per cent return on investment, do not appear in the statistical record. This paper is to be used as a datum for another dealing with the economic results of the electrification of parts of certain Class "1" railways.

Mr. Brown's argument depends for its soundness largely on the fact that main-line diesel-electric locomotives in the United States mostly are allowed an economic life limited to about 11-16 years. The customary re-engining and so on which takes place within this span necessitates the unit being re-classified as new and treated as such from the accounting point of view. According to I.C.C. rules this applies to any unit on which, as often happens, more than 50 per cent of the original cost is spent in any one year for repairs. In these circumstances, the equipment is retired theoretically and charged to depreciation reserve. Moreover, in the argument a comparison is drawn between the total actual investment in diesel power in the United States in 1957 (\$2,760 million for main-line units and \$1,120 million for yard diesel power) and a calculated hypothetical investment required for the equivalent number of modern steam locomotives to provide the same horsepower in the same year (\$1,925 million and \$555 million). Here due allowance is made for the difference in availability between the two types of power, suggested as 90 per cent and 60 per cent for diesel and steam respectively, by assuming that the numbers required would be inversely proportional. But a consideration of the utmost operational importance where high average speeds are to be maintained on heavily-trafficked lines, or where there may be many slacks or intermediate stops, appears to have been overlooked: although the same continuous maximum horsepower may be

required for open-road work with both types similarly loaded, the constant horsepower characteristic of the diesel enables it to accelerate much more rapidly from slow speeds and also to exert considerably greater tractive efforts for starting and at reduced speeds on steep gradients. This fact, which the author himself acknowledges elsewhere in the paper, serves to emphasise the danger of assuming a generalisation from the comparison quoted above which might erroneously be thought to apply, for instance, to railway investment and operation in Britain. In fact, the choice of efficient motive power to suit finely balanced individual conditions should involve many factors which will escape the notice of statisticians.

One of several interesting observations made by Mr. Brown concerns the limited experience of diesel operation in America at the time that the widespread change from steam began. It is his belief that the economies obtained during the period 1935-46 with relatively few diesel units placed in main-line and yard service were magnified by comparison with results for the then existing steam motive power which was largely neglected or worn out. With regard to changes in the traffic pattern, in the past it has been generally assumed that a large drop in train-miles since 1946 was caused by the practice of consolidating two or more trains into one much longer train, so effecting large savings in operating labour. This explanation has been given great emphasis by diesel manufacturers in the United States. But it can be shown that the same reduction of train-miles is the result of the withdrawal of many short trains on branch lines and to loss of the short-haul traffic on the remaining trackage. It is claimed that this is confirmed by the rise of only 5 per cent which has occurred between 1953 and 1957 in the average number of diesel units assembled to form each locomotive.

The author believes that to claim for the diesel locomotive responsibility for all the operating economies made since 1935, or even 1945, is to belittle the skill of management and to expropriate the credits due to investment in other new items of rolling stock, facilities, improved freight terminals and yards, in new signals and despatching systems, and in general improvements in permanent way and maintenance methods. Mr. Brown does not advocate a return to steam operation but he believes that countries where steam power is still in use may find the paper to be useful, as the same general relationships between steam and diesel should be fairly universal. On the basis of his figures for repair costs, he has made out a powerful case to justify the adoption of electrification for the main lines of British Railways.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

The Late John Bell

December 8

SIR,—Letters from friends reached me too late for me to send you additional items in them of John Bell's career not included in his biography. As some may be of interest to his many friends they are noted below. No doubt in consideration of his five years at Crewe, Bell's first appointment in India was to supervise the erection of the steelwork involved in the re-modelling of Moghalpura (Lahore) Locomotive, Carriage & Wagon Works, N.W.R. It was to the 1st King George's Own Sappers & Miners that he was commissioned in 1915. After the 1914-18 war he was for a time Assistant Secretary (Works), Railway Board. When his services were lent to the Bengal-Nagpur Railway in the early 1920s, he was posted to and later took charge of the Hesla-Chandil construction. Subsequently he was appointed Engineer-in-Chief, Central India Coalfields Railway construction. When the committee under the chairmanship of Mr. F. A. Pope, of the L.M.S.R., was appointed in 1932 to enquire into economy in working on the Indian Railways, Bell was selected by the Railway Board as one of its members. Thereafter he was appointed Deputy Agent (Organisation), East Indian Railway, to carry out the committee's recommendations. Reconnoitring in the desert beyond Tobruk in a jeep, he was blown up by a mine and "crawled some fantastic distance on his hands and knees" before being picked

up two days later. He "kept himself and his companion alive on water out of the radiator." Till his death he frequently suffered from the wound then received.

Yours faithfully,
F. S. BOND

Southborough, Kent

The Engineers' Guild

December 2

SIR,—In the article on page 642 of the December 2 issue of *The Railway Gazette* you state, *inter alia*, that "the improvement in the position of professional engineers in the British Transport Commission, particularly in respect of the remuneration of senior professional engineering staff, is also engaging the attention of the Guild."

The above leads one to conclude that the Engineers' Guild is empowered to negotiate on the question of the remuneration of senior professional engineering staff employed by the B.T.C. and its several Divisions (British Railways, Roads, London Transport, Docks, etc.), whereas the Engineers' Guild in fact is not recognised by the Commission as a negotiating body under Section 95 of the Transport Act, 1947.

During the recent negotiation proceedings the British Transport Officers' Guild submitted to the Commission, through the Joint Negotiating Committee, greatly improved salary ranges in respect of District and Assistant District Engineers. While our submissions were not accepted *in extenso* we obtained for our members some increases in excess of the Commission's proposals, together with a promise by their representative that the position of these engineers was a matter which would be separately examined.

Yours faithfully,
L. W. ORCHARD
Clerk to the Guild

The British Transport Officers' Guild,
Finsbury Court,
Finsbury Pavement,
London, E.C.2

Another Dissatisfied Customer

December 2

SIR,—Under the heading "British Railways Vindicated," your editorial of November 25 purported to answer criticisms of our railways contained in Mr. C. J. Gregg's letter in the same issue. Your editorial suggested that Mr. Gregg was wrong to criticise, and that the general public in this country is also wrong for holding similar views. Surely your attitude reflects that of British Railways, and is the short answer to the causes of the financial plight of the Transport Commission? You stated that you wished to underline the progress made by British Railways, but have you considered how tardy and isolated is the so-called progress? Have you considered how badly the railways serve the general public who, as Mr. Gregg points out, are paying more and more by way of taxation for little or no tangible result or return?

Your editorial assumed the role of a press hand-out by B.T.C. publicity. It also failed to answer satisfactorily any of the criticisms in Mr. Gregg's letter. He quoted actual examples of bad service and mentioned the attitude of railwaymen generally. These points were made from personal experience. It does your journal little credit that you did no more than reiterate official announcements on these subjects.

You mentioned the Guillebaud Report and the fact that its implementation will remove any cause for complaint. As the foremost railway journal it is surprising that you are so completely out of touch with the facts. The Guillebaud Report made comparison of railway wages with wage rates in other industries obtaining at the time of the inquiry. By the time the railwayman received his increase, in mid-August, albeit back-dated, he had already begun to fall behind rates of pay in other industries.

To deal briefly with other points in your editorial. Why are there these problems of introducing exceptionally fast trains into a congested timetable? If the timetable is standardised it is perfectly feasible to introduce fast trains or for that matter any type of train. For example, standardisation of the Western Region timetable would permit trains of the "Bristol Pullman," "Torbay Express," and "Cornish Riviera"

calibre at 10.45 a.m., 1.45, 4.45 and 7.45 p.m. to Bristol, at 8.25 a.m., 12.25, 4.25 p.m. for Torbay, and at 10.30 a.m., 2.30 and 6.30 p.m. for Cornwall. These trains are not exceptionally fast by continental standards, but, as you point out, conditions in this country are not paralleled abroad. You say that the pattern of traffic has changed completely since 1939. In many ways this is true, but for this change the railways are themselves very much to blame. Furthermore, if the pattern of traffic has changed completely why are all services basically the same as those in operation in 1939? One factor that has influenced the pattern of traffic which you did not mention was the fares policy of the Commission. Railway fares are too high. There is no question about this; it is a plain statement of fact. Not only are fares too high but, as the service offered for that fare diminishes, they become a further deterrent to the potential rail traveller. The Commission is far too complacent about the situation without the misdirected encouragement for its policy from a journal such as this.

In your October 28 issue your comment on B.T.C. rail receipts for the period ending October 9, 1960, was that the figures were mildly encouraging. For this period, compared with the same period in 1959, the increase in rail passenger receipts was £681,000: it should have been no less than £970,000. Opposite your editorial reply to Mr. Gregg were the figures for B.T.C. receipts to November 6, 1960. Again you made such encouraging remarks as "passenger receipts also reflect the impact of modernisation although higher fares have played their part too," and another "results are proving beneficial to rail. . . ." If one uses the accepted proportions that 60 per cent of passenger receipts are from ordinary fares and that 60 per cent of passengers at ordinary fares travel less than 200 miles the following facts emerge. For the November period, if one applies these proportions to the 1959 figure of £9,512,000, the increase in receipts due from ordinary fares increases alone should have been £856,000. The actual increase was £791,000, which illustrates two important points. The number of passengers has decreased and modernisation in its present form is not the answer to the problems of the railways.

You also applaud the closing of unremunerative branch lines; considering the facts, are you certain this is the correct policy of the Commission? Do not the figures quoted serve as a warning? They should. When a branch line is closed, the B.T.C. produces figures showing the saving that will accrue; invariably these figures are misleading as are most promulgated by the Commission. The service on a line threatened with closure is usually reduced to an unusable minimum, it is then easy for the Commission to prove that the line in question does not pay and can, therefore, be closed. If you doubt this, consider if you will the present service on the ex-G.C. main line or the service between Leighton Buzzard and Dunstable. The Commission, completely entangled as it is in the confusion of confusing, overlooks the more serious aspect of the closing of the branch lines. Again the figures I have quoted should serve as a warning. A warning, for example, that the electrification of the London Midland main line will never be able to pay for itself if the present policy is pursued. The practice of closing so-called unremunerative branch lines is depriving the main line of its feeder services and no service offered on the main line in four (?) years' time will attract back passengers who have had to use private transport to reach an even more distant railhead. A perfect vicious circle; as the passengers become fewer so the fares become higher, as the fares are increased so the passengers become fewer. This position is illustrated by the following figures: passengers carried (in thousands) in 1945, 1,371,794; in 1957, 1,101,234 and in 1958, 1,089,831.

The B.T.C. often quotes the fact that the increase in passenger fares has been small by comparison with prices generally. Always the ordinary single fare is quoted. Why? Because the increase in return fares is enormous. Before its abolition in 1952, the Monthly Return accounted for the major part of passenger revenue and, if one considers the rise in return fares; it is obvious that this is a deterrent to the potential passenger. In 1937 the monthly return fare to Brighton from London was 8s. 9d., in 1947 it was 12s. 3d. The ordinary return in 1957 was 16s., and it is now (for how long?) 21s. 6d. The passenger who accepts this increase and pays the high fare is then faced with services on the whole inferior to those offered

in 1938, when the private car was by no means a serious competitor. If our passenger is fortunate, he finds a convenient service in a timetable which, depending on the area in which he lives, he obtained a few days before, or a week or so after, the service commenced. He is by no means finished yet; the railway must frighten him away somehow; it issues copious supplements to the timetable. From these our passenger, if he be a magician, can ascertain whether or not his selected service is available. If it is, he presents himself at the station only to discover that the train he intended to catch has been "temporarily withdrawn." For the winter of 1959/60, the L.M. Region produced a timetable which gave services commencing on November 2. I believe the public books were available by November 12. The G.C. line Sunday service was completely wrong from the start. A supplement of 248 pages dated January 4, 1960, was first available at a local station on February 6, the G.C. line alterations were contained in a supplementary supplement of a mere 96 pages, received on February 10. Another 140-page supplement was published for April 25. Each supplement contained quite unintelligible tables, facing pages showing the bottom of a table over the top of the table from the next page in the public book. The 9.50 p.m. Sunday train from Euston was altered in the January 4 supplement to depart at 9.25 p.m. regardless of the fact that it had been doing this for the previous eight or nine months. This but a single example of many that I could recount.

At no time did your columns contain any criticism of the railways' disgraceful attitude toward their customers! Were you not aware of this chaotic state of affairs? Are you not aware it is scarcely any better at the present time? The "Bristol Pullman" introduced on September 12 this year was re-timed on October 17, the information appeared in a supplement dated November 7, and it was still possible to see posters on public display quoting the original timings a fortnight later.

May I suggest you accept Mr. Gregg's letter as fair criticism of our railways, and further that you would serve British Railways better by publishing fair criticism of their activities instead of acting as a mouthpiece for their publicity. Give credit where it is due, but for the sake of the future of our railway system do not encourage the railway administration into a deeper complacency.

Yours faithfully,

D. TAYLOR

Stone House,
Ivinghoe,
Leighton Buzzard, Beds.

[The reason that the British user is paying more and more for railway services is the constant increase which is taking place in costs of materials and labour, an increase occurring all over the world. That this increase will continue is admitted by our correspondent with his observation that the Guillebaud Report already is out of date. Until the laws of physics change, there will be some difficulty in running two trains over the same point of space at the same moment of time, and this difficulty is likely to remain while main traffic continues to run between a few congested bottlenecks. Unless the railways are to be held responsible for the rise in the general standard of living and the greater volume of money available to the public than that available before the war, loss of passenger traffic hardly can be laid at the Commission's door. If railway fares were substantially lowered, we doubt whether owners of motor-cars, motor-scooters, and bicycles would throw these away and rush to the railways. We stand by our mild encouragement of British railwaymen—even railwaymen need a kind word sometimes. We agree with the Commission's policy of closing hopelessly unremunerative lines: this is normal commercial practice, and any arguments to the contrary betray a lack of business acumen. Where there is some hope that the line will prove remunerative with alteration, the Commission does not close—it improves, as shown by the electrification of the Glasgow suburban lines. Our correspondent's criticisms of a three-week time-lag on the appearance of a supplement to a timetable also betrays ignorance here of the production difficulties involved in publishing anything in the nature of a directory. The suggestion that *The Railway Gazette* acts as the mouthpiece of the Commission will certainly amuse a very large number of our readers. —ED., R.G.]

THE SCRAP HEAP

Oh, Mr. Porter!

A railway porter was alleged at Berkhamsted to have taught a girl aged 14 to steal a mailbag for him. He was sent for trial on bail on six charges of stealing from the British Transport Commission, involving goods worth £23.

Time for Courtesy

The courtesy and helpfulness of the Stationmaster of Clapham Junction, British Railways, Southern Region, was brought to the attention of Watches of Switzerland Limited, which makes an annual award to four railway employees who have given outstanding service to the public, and, on November 30, the managing director of the firm presented a handsome watch to the stationmaster in recognition of his qualities.

Railroads and Presidential Elections

That a strong impetus has been imparted to trade and industry in the U.S. by the victory of the Republicans at the presidential election is now beyond question. We have heard a good deal about the speculative activity in Wall Street, which has forced the quotations of American railroad stocks up to very high figures, but the effect of the election on the business of the country generally has not received much attention so far on this side.—From *"The Financial Times"* of November 29, 1900.

The Old Order

Railway enthusiasts in Australia will mourn the loss of one of their most cherished lines, the three-mile long railway from Fyansford to Batesford, Victoria, which belongs to Australian Cement Limited, and is used for the transport of the company employees and the haulage of limestone. The 3-ft. 6-in. gauge line, which is to be replaced by a conveyor belt during the next two or three years, has an interesting history. It was originally built early in this century to replace a ropeway which hauled limestone from a now disused quarry. The locomotives then used were four small Hudswell Clark engines built in Manchester. One of these is still in use, but the others have been superseded

by a 50-year-old 30-ton American Vulcan, an English-built 65-ton Garrat and an Australian Garrat. A diesel is currently used for haulage duties. In 1930 a tunnel $\frac{3}{4}$ -mile long was excavated to carry the line to the bottom of the present quarry. The fact that it is the longest railway tunnel in Victoria by a good half-mile adds further distinction to the little railway.

Railwayman's Fun

Why the rah-rah-rah for wrestling? "Well, it's a giggle, and it's cheap," said Mr. Harry Armstrong, a railway shopfitter from Harringay.—From *"The Evening Standard."*

Busy Doing Nothing

Christopher Patrick Sullivan (47), a cobbler, of no settled address, has been remanded in custody for a week on charges of stealing two mailbags at Kings Cross Station and of assaulting Policewoman Jean Cranfield. The policewoman said she saw Sullivan bending over an open mailbag holding a small parcel which he appeared to be tearing open. She asked him what he was doing. He said "Nothing," and started to walk away. She followed and eventually detained him after a violent struggle.

Ain't No Place for Strangers

In connection with the new railway enterprises which are in various stages of progress, from preliminary survey to actual track laying, in the United States, it is curious to note the absence of long lines, the preponderance of branches to take old roads into new fields, the number of enterprises in old and rich Pennsylvania, and the entire absence of them in Iowa and Kansas. From the last-named states comes the complaint that the law-makers have made the investment of capital unsafe.—From *"Transport,"* March, 1894.

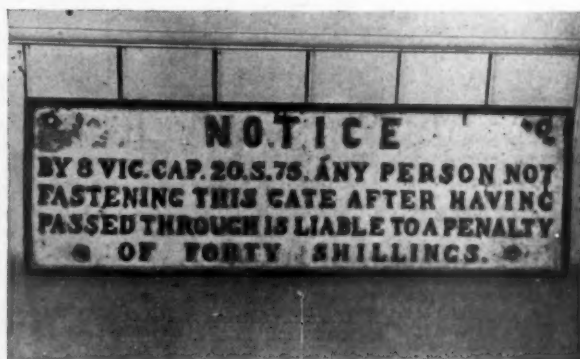
By Order

At the Headquarters of the Bluebell Railway Preservation Society at Sheffield Park in Sussex, there is an interesting railway museum containing many unusual

relics, including a collection of old tickets and ticket punches together with record books and photographs connected with the now defunct London, Brighton & South Coast Railway Company. Perhaps the most unusual items are in a collection of railway "No trespassing" notices gathered from former railway companies. Among these are notices from the Cheshire Lines Committee, the London & North Western Railway, the Great North of Scotland Railway Company, the S.E. & Chatham Railway Company, the London & South Western Railway Company, the Great Northern and Great Eastern companies, and also the Cambrian Railways. One of the most interesting notices in the collection is of unknown origin, and the meaning of the first few words—"By 8 vic. cap. 20.S.75"—has not been deciphered.

Hopkinson's Heating

In an article in *The Railway Engineer* of 1885 it was stated: "The principal defects in the hot-water warmers are: (1) frequent leakage; (2) rapid diminution of temperature; (3) trouble and expense of boilers; (4) weight and consequent labour in moving them about. It is evident, therefore, that any substitute for this method which would not possess the objections we have enumerated, and would yet have all the general features of simplicity and economy, must merit the favourable attention of railway officials." Continuing, the writer described a new heating apparatus, Hopkinson's Railway Carriage Warmer, as "A cake of specially prepared carbon which, having been heated, is introduced into a receptacle. This receptacle, in the form of a tray or a drawer, is inserted into a case so constructed that a current of air passes freely through it, circulating round the heated carbon from whence it is dispersed through the carriage, imparting a general warmth. A carriage containing one of these foot-warmers was tightly closed up for many hours to ascertain if any obnoxious gas was generated, but on opening the carriage the warm air proved to be quite pure. . . . Several large railway companies are examining the invention with a view to its adoption."



Three of the old warning notices preserved in the Bluebell Railway Preservation Society museum at Sheffield Park, Sussex. On the right is a notice of unknown origin

OVERSEAS RAILWAY AFFAIRS

(From our correspondents)



Jetty cranes damaged in typhoon at Chittagong

PAKISTAN

Typhoon Damage

Chittagong was hit by a cyclone on October 31. Accompanying the gale of over 120 m.p.h. was a 20 ft. tidal wave which struck along a stretch of low-lying coast. Heavy jetty cranes were uprooted, buildings and bridges collapsed, railway rolling stock was destroyed, and a three-mile section of line was washed away. Outward passenger traffic was resumed on November 1. The normal train schedule was restored two days later, and goods movement, which was partially resumed on November 4, returned to normal on November 6.

Planning Directorate

A Planning Directorate has been created in the Pakistan Railway Board. It will be in charge of Joint Director Planning and will deal with the issue of directives to the railways in regard to planning and development policy, and the five-year plans. The Directorate will keep a watch on the progress of major works financed from aids, loans and grants, and keep a liaison with the Planning Commission, Project Division, Economic Affairs Division and other Central and Provincial Government departments in regard to planning and development and also with the loan-, aid- and grant-giving agencies.

SOUTH AFRICA

Accident Prevention

The staff of the railway workshops throughout the country have responded with enthusiasm from the very start of the accident prevention programme instituted some years ago under the direction of the chief railway health officer.

Four depots last year, Germiston, Salt River, Pietermaritzburg, and Koedoespoort, received awards of merit at the annual award ceremony of the National Occupational Safety Association. The 1959-60 financial year showed an overall reduction of 60 per cent in the accident rate since the introduction of safety practices in the mechanical workshops of the Railway Administration.

RHODESIA

Radio Telephony

Following a comprehensive series of tests, Rhodesia Railways has decided to adopt radio-telephony to improve the control of shunting operations in the Greater Bulawayo area. To date, two shunting engines, a motor van used by the yardmaster, and a personnel bus engaged on call-out duties have been equipped with v.h.f. two-way radio equipment, while fixed stations have been established in the station superintendent's office at Bulawayo and in the assistant yardmaster's office at Mpopoma. The use of two-way radio-telephony will speed up shunting considerably, especially as far as the Bulawayo-Mpopoma shuttle service is concerned and in that area of the industrial sites in which it is in operation. In addition, it has made possible the release of at least one engine and a complete set of shunters for other duties. Time is saved because drivers do not have to leave their locomotives to telephone for instructions.

IRELAND

Automatic Signalling

Coras Iompair Eireann recently introduced automatic signalling between Amiens Street and Howth Junction, a

distance of some 4½ route miles of double track. The signals, which are of the multi-lens three-aspect, colour-light type, were designed by the Signal & Electrical Engineer's Technical Staff at Broadstone, and manufactured at Inchicore Works. They are located at all the intermediate stations on this portion of track. Similar signals have also been used to replace the remaining mechanical type signals in the area. A total of 12 colour-light signals has been installed and the scheme also involves complete track circuiting of both lines. The introduction of automatic signalling has resulted in improved headway for trains.

SPAIN

Extension of Madrid Metro

It is expected that construction on the extension of the Madrid Metro, from Ventas to Arturo Soria (some two miles) will start shortly, involving the construction of four new stations with 100 yd. platforms and costing 131 million pesetas. Among other schemes, the extension between the Tetuán and Plaza de Castilla Stations should be operating by the end of the year; while a completely new line is planned from Puente de Toledo via Callao and José Antonio to Calle Velázquez.

BRAZIL

Sorocabana Railway Improvements

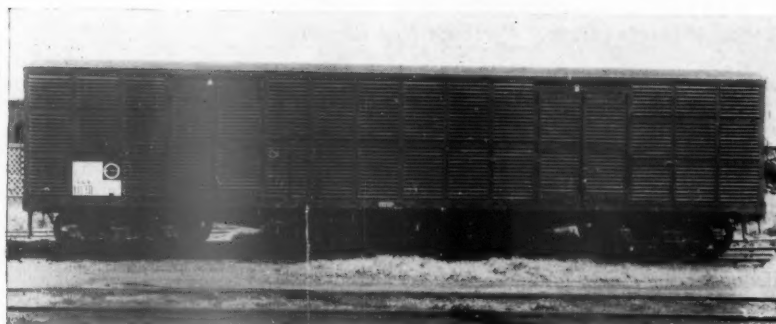
The Brazilian Bank for Economic Development has advanced 975.6 million cruzeiros for the re-equipment of E. F. Sorocabana. The extension of the line toward Pontal has been completed from Presidente Prudente to Dourados (104.8 miles). C.T.C. has been inaugurated from Sao Paulo to Barra Funda and is now being extended to Ourinhos.

Purchase of Locomotives

In addition to the 195 diesel-electric locomotives, acquired in 1958 and 1959, the Federal Railways has placed orders for 151 units in the first half of this year and has now ordered a further 199, costing \$32 million; 65 of the latter are for broad gauge and 128 for metre gauge. Six are electric locomotives. Delivery is to start early in 1961 and payment, to begin in 1964, must be completed in 1971. The first units ordered early this year are now starting to arrive. The 195 diesel-electric locomotives received in 1958-59 absorbed \$38 million of the \$100 million Eximbank loan granted in 1957. The remainder of the loan was used for equipment for signalling, electrification, airbrakes and couplers. Some \$17 million were spent on re-equipping the Sao Paulo Government railways, Sorocabana, Araraquara and Mogiana. The last-named is now receiving 23 G.M. diesel locomotives, type "G.L.8," 950 h.p.

Bulk Freight Handling in New South Wales

Freight agreement to provide for conveyance of general goods under bulk loading conditions



Bogie louvre van used to convey consignments under the bulk loading system

A SYSTEM of handling general goods traffic, begun by the New South Wales Government Railways in a small way eight years ago, now involves the handling of an annual tonnage of over 700,000, yielding a revenue exceeding £4,000,000. It is known as the bulk loading system and it was introduced early in 1953 as a result of competitive conditions then existing on the North Coast of New South Wales. At that time the Department of Railways conveyed large quantities of dairy products, fresh fruit and vegetables, fish and other products from the area to Sydney at very low rates. Very little back loading was available because road hauliers were rapidly diverting the haulage of manufactured goods from rail by quoting low rates to retail business firms for transport from Brisbane.

Freight Agreement

To meet the position a freight agreement was entered into by the Department with an established carrier at Lismore, the largest centre on the North Coast. This agreement provided for the conveyance of general goods under bulk loading conditions from Darling Harbour, Sydney, to Lismore. Although Lismore is 520 miles by rail from Sydney but only about 150 miles by road from Brisbane, and the inter-State road hauliers are not subject to State road taxes, the system was successful in meeting road competition. The revenue now received by the Department from the Lismore bulk loading system exceeds £120,000 a year.

Private Bulk Loading System

Under this system, known as the private bulk loading system, the contractor pays a flat charge per truck and is required to receive, load, and unload consignments and to accept risk for loss or damage to them. He is responsible for canvassing business clients to divert traffic from other forms of transport and he is free to frame his rates on a basis necessary to compete.

This system was introduced when the Department was experiencing serious shortages in staff and rolling-stock. It

proved so successful that it was extended to a total of 16 country centres and to Brisbane. A variation of the private bulk loading system exists for general goods consigned from Sydney to Melbourne and to Adelaide whereby the contractor pays the Department on a tonnage rate, not a flat trunk charge.

Introduction of New Arrangements

In 1956, when the staff and rolling stock positions had improved, the Department introduced new arrangements for all extensions of bulk loading by undertaking all the activities and responsibilities of the contractor under the private bulk loading system. In addition to loading and unloading the consignments and accepting responsibility for any loss or damage the Department frames the rates on a basis designed to condense the list of commodities specified in the rates book in such a way as to meet competition from the other forms of transport, to simplify invoicing and accounting, and to permit clients to readily assess freight charges and accurately determine transport costs.

This system, known as the departmental bulk loading system, was started from Sydney to Orange, the largest centre in the western part of the State. It is a large fruit growing area and the road hauliers were in a position to handle the traffic direct from the grower to the Sydney market and to quote low rates for general goods to secure back loading. The system proved so successful between Sydney and Orange and to other country centres that it has been steadily extended until it now links Sydney with 60 centres in all parts of the State.

Rolling Stock

With both the private and the departmental bulk loading systems the vehicles used, where practicable, are confined to covered vans that are locked after loading, thus obviating risk of loss or damage and ensuring as far as possible the arrival of the consignments in good order and condition. Fast transit direct to destination is given, and to towns some 400 miles from Sydney the vans are scheduled to arrive on the day after loading.

Under both systems consignments are directed to one central loading point in Sydney to ensure that the best possible use is made of the railway vehicles and the highest revenue earnings achieved. Any reduction in the rate per ton mile under both systems is more than offset by the economies in truck usage and engine power resulting from the better loading.

Liaison with Local Interests

It has always been the practice when the introduction of either system was contemplated to negotiate with the local Chamber of Commerce or other representative body of business clients in the town. These organisations are also consulted in the selection of the local carrier. Under the departmental bulk loading scheme the selected local carriers are required to sign a contract with the Department providing for the prompt delivery of goods from rail to store at cartage charges acceptable to the Chamber of Commerce. This arrangement ensures that any reduction in railway rates to meet competition is not defeated by the local carriers increasing cartage charges. Business clients are not required to make use of the services of the selected carrier. They are free to arrange their own deliveries from the destination station or to select their own local carrier.

A noticeable effect of the bulk loading system is that the better service provided has created considerable goodwill on the part of country clients, resulting in the diversion to the railways of their consignments other than the general goods carried under bulk loading conditions.

EASTERN REGION ELECTRIFICATION SERVICES REDUCED.—The majority of one type of stock on British Railways, Eastern Region, North-East London suburban electrified services is being withdrawn because of serious electrical failures. Certain Liverpool Street-Enfield and Liverpool Street-Chingford services were reduced last Monday. The Eastern Region hoped that the progressive elimination of the teething troubles would result in a steady improvement in the services, but a pattern of serious electrical failures in one type of stock has developed, resulting in a considerable number of failures on the line. The contractors concerned have assured the Eastern Region that they have the remedy for the major faults and are doing all in their power to correct them, but in view of recent experience, the Region has had no alternative but to withdraw the bulk of the type of stock concerned until such time as modifications have been made to the electrical equipment. In the meantime, steps are being taken to make use of all other available stock and to maintain as good a service as possible. The new services, operating on the 25kV. 50-cycles a.c. system, were introduced last month on the lines between Liverpool Street, Chingford, Enfield Town, Hertford East, and Bishops Stortford.

The Future of the North Eastern Region

A summing-up of the trends apparent in the twelve preceding articles by North-Eastern officers published this year, and an indication of future development in the Region

By F. C. Margetts, M.B.E.,

Assistant General Manager (Traffic) North Eastern Region

IT is probable that there could be no more difficult time than the present to forecast the future of the railways. In recent months, much has been said and written, more has been conjectured. Between the extreme thinking of the Railway Conversion League, which sees no future at all for railways and wishes to convert them into roads, and those who think every existing mile of line and every station should remain open, there are many shades of opinion. Not for a long time have so many people taken such an interest in the future of the railways as now.

Rail Transport is Necessary

Leaving aside extremes, the consensus of opinion seems to be that a railway transport system is necessary. Anyone who has read the report of the Select Committee, heard the discussion in Parliament, read the newspapers and transport periodicals, followed the deliberations of bodies like the Chambers of Commerce, and taken note of the transport requirements of the basic industries alone must concede that there are many directly and indirectly interested who agree railways still have a part to play in the economic life of the country. Indeed, it might be pertinent to repeat the question posed recently in *The Railway Gazette*—"What, it may be asked, is the opinion of millions of passengers and consignors who rely on rail transport for good service—and usually get it?"

What appears to exercise most people's minds is what should be the ultimate shape and size of a railway system in our heavily-industrialised and densely-occupied country where competition in various forms, both for passenger and freight, flourishes apace. Additionally, there are different views on how the system should be equipped and operated.

Indication of Faith

In 12 articles in this journal, experienced North Eastern railway officers have described developments, all part of a pre-conceived plan, designed to convert the railways of the North East into a modernised and compact system attuned to the changed and still-changing pattern of personal travel and freight transport requirements. These articles are a clear indication of faith in the future, a faith which is strengthened as our commercial and public and internal relations—so well described by the Commercial and Public Relations & Publicity Officers—expand. But faith in oneself and one's industry is not enough. When there are people who see no future for the railways, it is pertinent to ask why. In many cases it may be due to lack of knowledge. Knowledge of

what is being done, why it is being done, when it will be completed, what—when completed—the whole will achieve. To some extent it was with this in mind that the articles were written.

It is not the writer's intention to try to forecast the outcome of deliberations now proceeding. It is the intention, despite the difficulties, to try to paint a picture of the traffic future as seen by those responsible for railway transport in the North East. Others have described the progress in the modernisation field and it only now remains to look at the principal traffics.

In the past, the North Eastern Railway, ultimately the North Eastern Area of the London & North Eastern Railway, depended a great deal on the basic industries of the North-East Coast. If they were busy, the railway was busy. If they were in the doldrums, then the railway was equally so. Boom and depression were reflected in the tonnages passing by rail and in the passenger journeys. The North Eastern Region of British Railways, an enlarged version of its predecessors by reason of expansion in the West Riding of Yorkshire, experiences the same trends.

Passenger Journeys

Earlier articles have dealt with the extent to which the introduction of multiple-unit diesels and active promotion of passenger travel have led to increased journeys and receipts. Mr. Ayers reviewed the results over a period of eight years. But it has to be faced that, creditable though the results were,

alternative travel by car, coach, and aeroplane persistently encroach on the rail preserves.

So a look at a wider period presented diagrammatically may help to forecast the future. In 1931 35½ million passenger journeys (excluding season tickets) originated on the North Eastern Railway. In 1938 the figure was slightly higher. Additionally, a record of season ticket journeys then available shows that there were 13½ million journeys in this field. By this time, rail travel was being subjected to increasing competition but, despite the vicissitudes and even after allowing for the extent to which the Regional figures for the year 1951 were affected by the expansion into the West Riding, the North Eastern Regional policy in the diesel multiple-unit field effectively reversed the downward trend until comparatively recently.

Current Trends

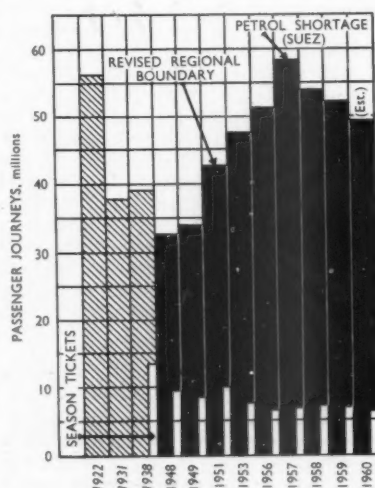
Allowance must be made in 1957 for the Suez Crisis and the provincial bus strike, but, even when this peak is ignored, the trend to 1958 is clear. But in 1959—and in 1960 so far as can be forecast—the aftermath of trade depression in early 1959, increase in motor cars licensed, poor weather in 1960—all these and some measure of withdrawal of booked and special passenger services known not to be paying led to a decline in journeys.

In the future a number of uneconomic services will be examined and possibly withdrawn. Individual stations will be closed. Speculative excursions will be confined to defined limits. These moves and competitive means of travel will further reduce journeys. On the expansion side, a number of diesel services remain to be introduced, including the intensive inter-city service between Leeds, Manchester, and Liverpool. Other existing services will be accelerated and the frequency improved. Increasing publicity and improved public relations and intensification of the kind of measures so well described by Mr. Ayers will add to the score.

So the conclusion is reached that the Region has nearly achieved the optimum in passenger travel, that losses in one direction may be balanced by gains in another, and the main task will be to consolidate and hold the position and at the same time reduce costs. It is pertinent to see from the diagram that it is hoped to consolidate the position at a level considerably above that of 1931 and 1938.

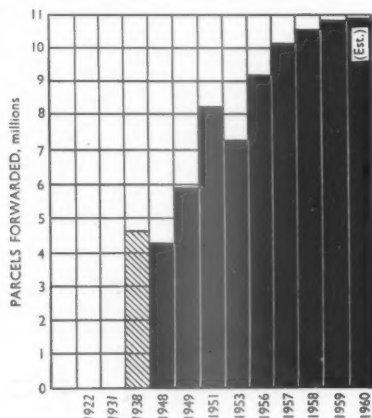
Parcels

Year-by-year increases in parcels traffic have been spectacular. In 1938 slightly over 4½ million parcels were despatched.



what really matters is whether a position attained by new methods and approaches can be consolidated and held when

This figure excludes letter mail and parcels post. Again, in 1951, the figures were affected by the West Riding transfer. Each year since 1953, the number has risen until in 1959 and 1960 nearly 11 million parcels were forwarded by rail. No other transport agency gives a comparable service and the forecast for the future is "set fair."



But the mainstay of the Region is freight—heavy freight. What are the trends? How do they compare with some years in the past? And what are the prospects for the future? It is not practicable to look at all the traffics and this article therefore is confined to reviewing some of those which are well known.

Coal Traffic

The largest single traffic in the North East has always been coal. It still is. Approximately 40 per cent of the gross receipts for the Region are derived from coal and coke. In the years from 1913 onward, a huge volume of coal was conveyed by the North Eastern Railway and by private railways for shipment abroad and coastwise. But shipment of coal has declined. The diagram shows the picture over a term of years in both the shipment and landsale fields. The tonnages quoted exclude those handled by private railways and in 1951 the figures were affected by the transfer of the West Riding to the North Eastern Region. It also is pertinent to remember that a decline in shipment coal, with its predominately short hauls, and an increase in landsale coal involving longer haulage from colliery to destination demands a greater rail transport contribution.

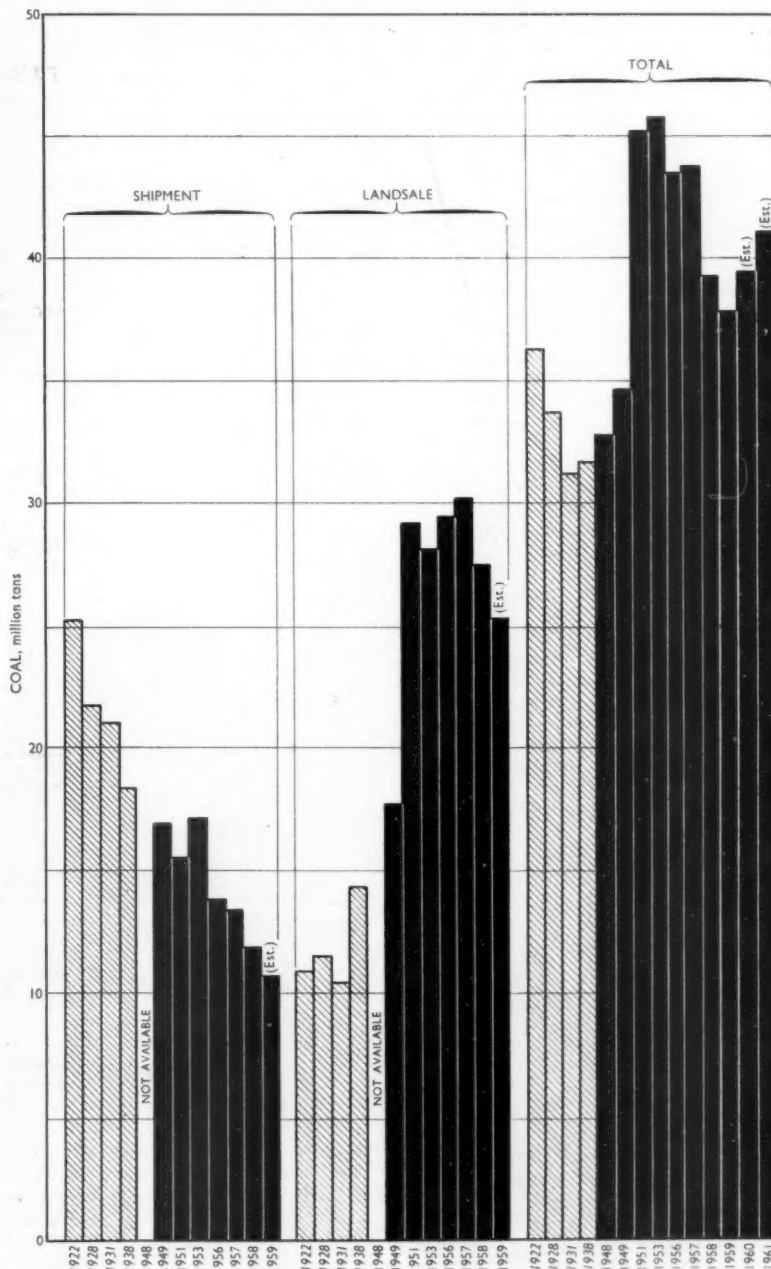
It may be useful to look at the situation for the country as a whole since 1956. That year was the year of peak demand for coal. Consumption and exports amounted to 228 million tons. The figures for 1957 were some 7 million tons less than 1956. This was followed by a fall of 13 million tons in 1958 and a further fall of 13 million tons in 1959. These are all-country figures which indicate the extent to which the market situation changed in a short space of time. The downward trend was reflected in the North Eastern coal figures as the diagram shows.

The iron and steel industry did not

recover from the 1958 recession until well into 1959 and the latter year was the warmest for 10 years and this affected household supplies. Now, the trend has been reversed and it is estimated, provided heavy industry is maintained at its present level, that in 1961 the Region will again be called upon to convey coal above

this, the greatest of our natural resources, give up to its great competitor oil? How much progress will occur in the way of better usage leading to reduced consumption?

What hopes are there, if any, of a revival in the export trade? When will the downward trend in household con-



the 40-million-ton level. And this despite the increase in the use of oil fuels by industry, despite road competition which is active in the field of coal transport, and despite the effect of the Clean Air Act.

As coal is so much the mainstay of the Region, it may be pertinent to ask further questions. What is the estimated trend? How much more ground must

sumption be halted? What will be the effect of developments in the iron and steel industry on their consumption of solid fuels? These and other questions are pertinent. The answers are of great importance to the North East. Not all of them are yet known.

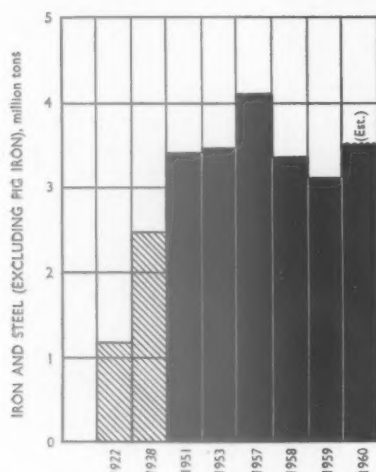
No doubt the North East will feel the impact of some part of reduction in production which inevitably may come, but we

shall still have a huge quantity left and a vital service to give in its movement.

And perhaps a reference to the "Revised National Plan for Coal" may be useful here. This plan envisages an increase in demand and production as a whole from the level of 1960. There is no doubt that the coal industry is prepared to be competitive. It envisages that by 1965 total demand may be somewhere in the region of a range from 200 million to 215 million tons a year. And there is no reason to think but that the North Eastern Region will continue to maintain its proportion and participate in any success which the National Coal Board achieves.

Iron and Steel

There have been great changes in the iron and steel industry in the North East. Concentration and modernisation have been the theme. Great new plants have arisen and many which contributed to the well-being of the old North Eastern Railway are no more. The capacity of those which remain has expanded tremendously. Changed demands and changed sources of supply have reduced rail carryings of iron ore, ironstone, and pig iron when compared with earlier days, but there have been great increases in the carryings of other traffics. In 1913 half a million tons of scrap went by rail. In 1951 the figure was over a million. In 1959, during part of which the steel trade was depressed, the figure of 1 million tons still held good. In the field of semi-finished products, slightly over a quarter of a million tons of blooms, billets, and ingots were carried in 1913 but in 1957 a million tons was exceeded. The finished iron and steel products amounted to 1,900,000 tons in 1913. In 1938 the figure was pretty much the same. By 1951 the Region was approaching the 2½-million mark and in 1953 and 1957



this figure was exceeded. Collectively, the forwardings of all classes of iron and steel by rail are well illustrated in the accompanying diagram.

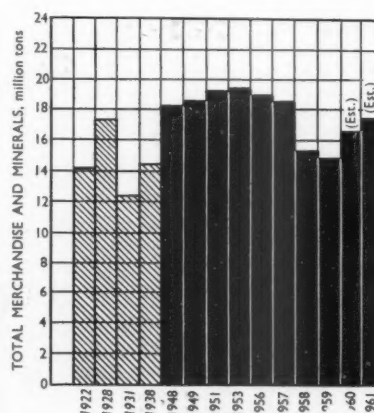
And what of the future? On all sides there is evidence of growth in the field of steel production. In the North Eastern Region new plate mills have been built at

West Hartlepool and at Consett and are just coming, or are on the verge of coming, into production. Dorman Long has built at Lackenby on Tees-side its great universal beam mill. Further expansion is envisaged. It is estimated that output from the whole of the country next year will be between 24 million and 24½ million ingot-tons out of a total capacity of the order of 27 million tons. By 1965, according to plans worked out by the industry and the Iron & Steel Board, capacity will be raised to over 30 million tons. These are striking figures and, as always when the iron and steel industry prospers, so should the North Eastern.

Increased production of steel means increased use of scrap, limestone, coke, coal, and other raw materials. These commodities always have been the life-blood of the Region and all the trends this year clearly indicate that the continuing prosperity of the basic industries is being accompanied by substantial rail increases.

Merchandise and Minerals Traffic

Merchandise and minerals traffic will be examined together. The diagram shows the tonnage trends over a period of years. The position was almost static



during the years 1948 to 1957 inclusive but, at that stage, the country-wide recession is reflected in the substantial fall during the years 1958 and 1959. But the position this year has substantially improved and the outlook for next year is even brighter. Despite recessions and the inroads of competition, the volume of traffic handled remains substantial and there is undoubted evidence that the Regional re-organised sales organisation, its charging freedom, and its recognition of the need for change and flexibility will continue to ensure an upward trend in the future.

Oil

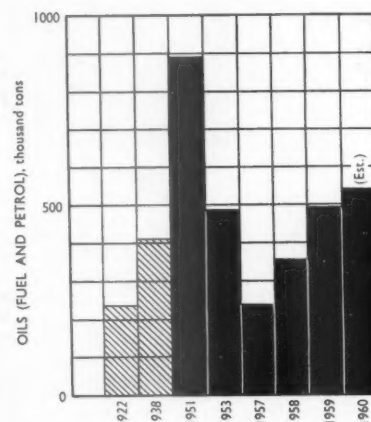
Oil fuel is an ever-expanding traffic. As the principal competitor of coal in which the Region has such an interest, its impact must be examined. It is said that oil delivered in 1959 into markets where it was in competition with coal had risen to some 30 million tons of coal equivalent. And its use will expand. Conveyance is predominately by sea and

road but rail can and does offer a service, and another diagram shows the extent of growth.

It would be interesting to review many other important traffics in detail and by diagram, but space will not permit more than mention of a few. In some, the volume conveyed by rail has declined. In others it has increased and the potential is great. It would be foolish to pretend that there ever will be a return to the colossal tonnages conveyed by rail in the old North Eastern Railway days.

Many Changes

There have been so many changes, not only in the competitive fields of transport, but in consumer demands, sources of raw materials, production techniques, stock-



ing, and in other directions. Some of these changes have contributed towards a decline in the demand for transport as a whole. In the field of heavy traffics, a good example is the decline in ironstone mining in the Cleveland Hills. In 1913 the production was about 6 million tons. It is now half a million tons. Other examples are sugar beet, grain, and flour. In lighter fields, less timber, wool, textiles, fruit, vegetables, and fish is passing by rail. Admittedly, road competition has made great inroads.

As a contrast, there have been outstanding increases in fertiliser traffic and the expanding use throughout the country should lead to further increases by rail. In the general field of chemicals, there has been a maintained increase. The use of cement expands and so do the carryings.

And so, inevitably, the heavier traffics predominate in the pattern for the future. They play, and will continue to play, a greater part proportionately in the future of the Region. Mainly, they pass from private siding to private siding and make no demands on the road system in any way. Naturally a rail system designed in earlier near-monopoly days does not now fill the bill. Much is redundant, particularly in country areas. Many facilities are in the wrong places. New ideas, equipment, and practices must be applied. A new conception of service must be applied.

In some ways, one might think that the old North Eastern had a glimpse of

the future. It was almost as though a curtain was temporarily drawn aside. Beyond, some saw the pattern of things to come—ill-defined, nebulous, maybe—but it was there for those who had the vision to understand. And one or two had the vision. They saw possibilities of the lorry and introduced the radial delivery services.

Some saw the coming decline of the road-side station and closed those between York and Scarborough in 1930.

Some saw a future for the lightweight passenger rail vehicle. Rail buses and Sentinel-Cammell cars were in a way the forerunners of our present diesel multiple-units and diesel railcars.

But action in these fields was spasmodic. Perhaps there was little enthusiasm. Technical progress in the development of units other than the steam engine was not sufficiently advanced. Closing of an odd station might be all right, but one did not embark on this as a practice. The shadows cast by coming events were not yet obvious enough. And so the pioneering efforts

expired, only to be revived with urgency long after—not too late—but certainly not early enough. Maybe there are some who may describe this lull as “the years that the locusts have eaten.” But to this the North East does not subscribe. It is not too late, although there is leeway to make up. Time is not necessarily on our side. Decisions—courageous decisions—must be taken and acted upon. Have we made these decisions? Having made them, are we acting upon them?

Evident Progress

Earlier writers have described the decisions. Some of the action has been outlined. In some cases results have been tabled. But since the series commenced, physical progress has become more evident. A tour of the Region reveals the dominance of the multiple-unit diesel, the increasing number of diesel-electric locomotives, the scope of engineering work as the new yards at Newport, Lamesley, and Healey Mills take shape, the modernised motive power depots, the concentration of goods

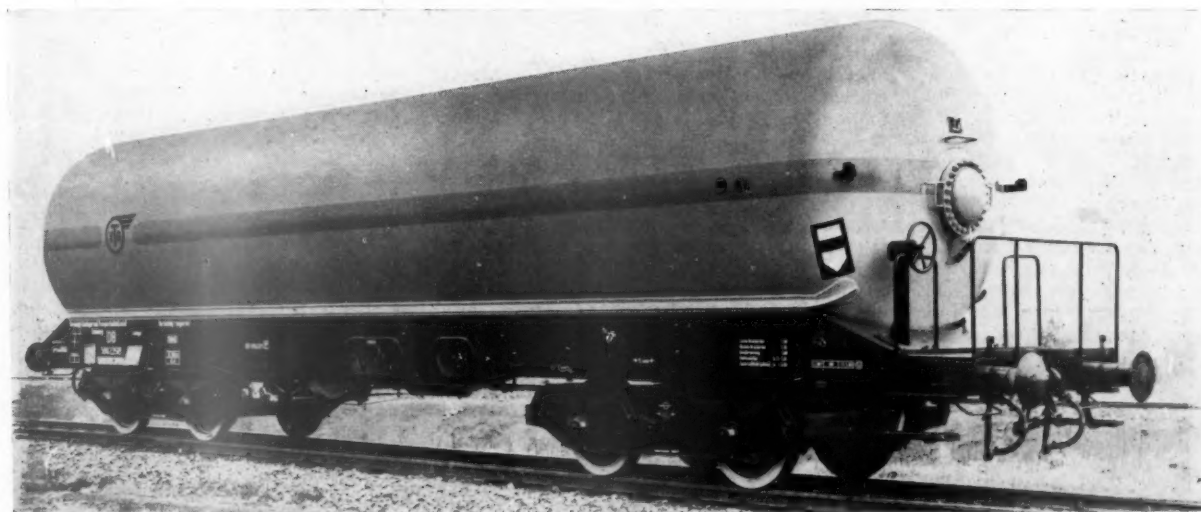
handling depots, the expansion of colour-light signalling, and many other developments—all part of the plan. Not to be seen, but commencing to be felt, is the improving public and internal relations.

One question remains. Have we made our actions and intentions known in sufficient time to everyone? To those inside and outside the industry? Maybe not sufficiently, and this is one of the reasons these articles have been written. There is a future for the railway as a whole and for the Region. This canvas of the future is clear-cut, full of promise, and capable and worthy of attainment.

Finally, these articles should not close without mention of the outstanding contributions to the conception, planning and development of the Region's “new look” by everyone concerned in the technical departments. Emphasis has been on traffic planning, thinking, and demands. Even greater emphasis should be placed on the teamwork involving every department which has been, and is, such a feature of the Region's determination to face up to the future.

Large Bogie Tank Wagons

Standard-gauge design with welded light-alloy tank of 3,500 cu. ft. capacity for gas transport



Privately-owned German tank wagon of 44.5 tonnes maximum payload on an axleload of 20 tonnes

MOST of the liquid and gas tank wagons running in Germany are not the property of the German Federal Railway (Deutsche Bundesbahn) but of private owners such as the oil trading companies; and for one of these a batch of 30 bogie tank wagons with the very large capacity, for Europe, of 100 cub. m. (3,530 cu. ft.) has been completed recently by Linke-Hofmann-Busch G.m.b.H. at the Salzgitter-Watenstedt works.

These cars are for the carriage of compressed gas, including propane, butane, propylene, butylene, and ammonia. They have a tare of 35.5 tonnes and a maximum

possible pay load is 44.5 tonnes, giving a gross laden weight of 80 tonnes and an axleload of 20 tonnes. The one-metre wheels, and two-metre (6 ft. 6½ in.) wheel-base bogies are of German Federal Railway standard freight-wagon type with a pivot pitch of 9.5 m. (31 ft. 2 in.); length over headstocks 15.76 m. (51 ft. 9 in.), and length over buffers 17.0 m. (55 ft. 9 in.).

Verdingen ring-spring buffers and non-continuous drawgear with volute springs, according to U.I.C. specifications, are used. Air braking is on the Knorr KE-GP.14 system with empty and loaded

braking device and double-acting slack adjuster of model DRV-2-600.

A fully-welded underframe of rolled sections and plates takes the buffing and drag stresses direct, and to it is riveted the tank. This tank is 3.0 m. dia. by 15.0 m. overall length (9 ft. 10 in. dia. by 49 ft. 4 in.). It is welded up of an alloy steel of 60/72 kg. per sq. mm. (38/45 tons per sq. in.) tensile strength, with a yield point of about 46 kg. per sq. mm. (29 tons per sq. in.). Discharge of the contents is through a quick-acting valve supplemented by an outside shut-off valve, but remote control can be arranged if desired.

Pullman Services on British Railways

An account of the operation of the Pullman Car Co. Ltd. after the war and after its acquisition by the British Transport Commission

F. D. M. Harding
Managing Director, Pullman Car Co. Ltd.



The "Golden Arrow" just out of Victoria Station in the Southern Region

AT the end of the war in 1945 the fleet of the Pullman Car Co. Ltd. was in poor shape. Four cars had been completely destroyed by enemy action and 120, out of the fleet of 200, had suffered damage. In some cases, this damage was very extensive. On cessation of hostilities, the Ministry of Supply ordered a standstill on all outstanding contracts, an action which directly affected companies such as the Metropolitan-Cammell Carriage & Wagon Co. Ltd. and the Birmingham Railway Carriage & Wagon Co. Ltd. Without hesitation, the board of the Pullman Car Company took this opportunity to place orders with these two companies for complete renovation of its fleet. This enterprise was worthy of the initiative of George Mortimer Pullman, and it put the Pullman Car Company back on its feet at a very critical time in its history.

Rapid Restoration of Services

The Southern Railway was equally courageous in its programme and decided that the "Golden Arrow" between London and Dover, the British counterpart of the Wagons-Lits Company service between Calais and Paris, should be the first service to be re-introduced in April, 1946. The cars, including the newly-converted *Trianon Bar*, were completely renovated and equipped with a public address system, and went into service on April 15, 1946. New uniforms were introduced for the "Golden Arrow" staff: white monkey jackets with blue facings, decorated on each lapel with

gilt and enamel brooches bearing the coats of arms of the Pullman Car Company. The introduction of this service was greeted with enthusiasm and for many months thereafter the train was fully booked.

Other services were introduced as quickly as possible. The composite cars in Southern Railway multiple-unit electric trains were re-introduced in the summer of 1946; the "Bournemouth Belle" came back into traffic in November of that year; and early in 1947 the "Brighton Belle" was back in regular service.

In June, 1947, at the instigation of Sir Eustace Missenden, General Manager of the Southern Railway, two new Pullman trains were introduced in the summer service to the West Country (Ilfracombe and Plymouth) and were given the name of "The Devon Belle." Each train included an observation car at the rear of the train in the Ilfracombe portion.

On the London & North Eastern Railway the "Yorkshire Pullman" was re-introduced in October, 1946, and the two "Queen of Scots" trains, which were delayed for two months by a strike (not in the Pullman Car Company works) went into traffic in July, 1948.

New Trains after Nationalisation

After nationalisation, at the request of the then Railway Executive, in September, 1948, a new Pullman train, the "Tees-Tyne Pullman," was introduced in the Eastern and North Eastern Regions, British Railways, making a daily return

trip from Newcastle and Darlington to Kings Cross; later the stop at York was interpolated on the down journey. After the acquisition in 1954 of the Pullman Car Co. Ltd. by the British Transport Commission, a new service, the "South Wales Pullman" from Paddington to Newport, Cardiff, Port Talbot, and Swansea and back, was introduced by the Western Region on June 27, 1955. Another all-Pullman train, the "Master Cutler" from Sheffield to Kings Cross and return, was introduced in the autumn of 1958 by the Eastern Region.

At this time more than half the fleet of 206 Pullman cars were formed in 13 all-Pullman trains. There were in addition 23 composite electric Pullman cars operating in the Central Section of the Southern Region. The company also operates 46 buffet and pantry cars which are the property of the Southern Region.

Not Mentioned in Act

The Transport Act of 1947 made no mention of the Pullman Car Company. No explanation has ever been given for this omission, but perhaps it resulted from the fact that the Pullman Car Company was at that time operating on the Southern Railway under a contract which was due to terminate in 1962, and its contracts with the London & North Eastern Railway had been of 10-year duration with protection in the event of non-renewal.

The Pullman Car Company continued, therefore, with its operations in these two regions of British Railways until in

September, 1953, the position was regularised by a new agreement between the company and the Railway Executive, as agents of the British Transport Commission. Existing contracts with the Southern Railway and the London & North Eastern Railway were not identical but in this new agreement with the Railway Executive any differences in conditions were done away with on an agreed give-and-take basis, but no extension was made in the term and it was intended the new agreement should come to an end in September, 1962.

Rehabilitation

There remained the problem of replacement of those cars in the fleet which were nearing the end of their useful life. At this time the company had accumulated a considerable fund from the amortisation of its fleet, but the board was unable to recommend to the shareholders that this should be used for the building and introduction of new cars for which only a very short operating life could be expected.

Other outlets for the use of this fund were, therefore, examined from an investment point of view and no doubt this was taken note of by the British Transport Commission. The possibility of the Commission purchasing control of the Pullman Car Company had also been under examination for some time.

In the spring of 1954 the Commission

decided to make an offer to the holders of the ordinary shares of the Pullman Car Company. This was accepted by a majority of the shareholders and, in June of 1954, the British Transport Commission became the owners of the whole of the equity of the Pullman Car Company. The Pullman Company also has outstanding £386,000 of an authorised issue of £500,000 of 4½ per cent cumulative redeemable preference stock. The owners of this stock have no voting rights and the holdings were not disturbed. Perhaps it is considered that in present conditions this is very cheap money and the stock is, therefore, quoted at a correspondingly low price which would not justify redemption.

The position, therefore, is that the company is wholly owned by the British Transport Commission subject to the rights of the holders of the preference stock. It continues to be directed by a board appointed by the British Transport Commission and the former management remains unaltered.

Diesel Services

When the British Railways modernisation programme was accepted in 1955, a committee was set up under the Chairmanship of Mr. H. H. Philips, then of the Western Region, to examine the possibility of introducing diesel express passenger trains. All the Regions and technical branches of the B.T.C.

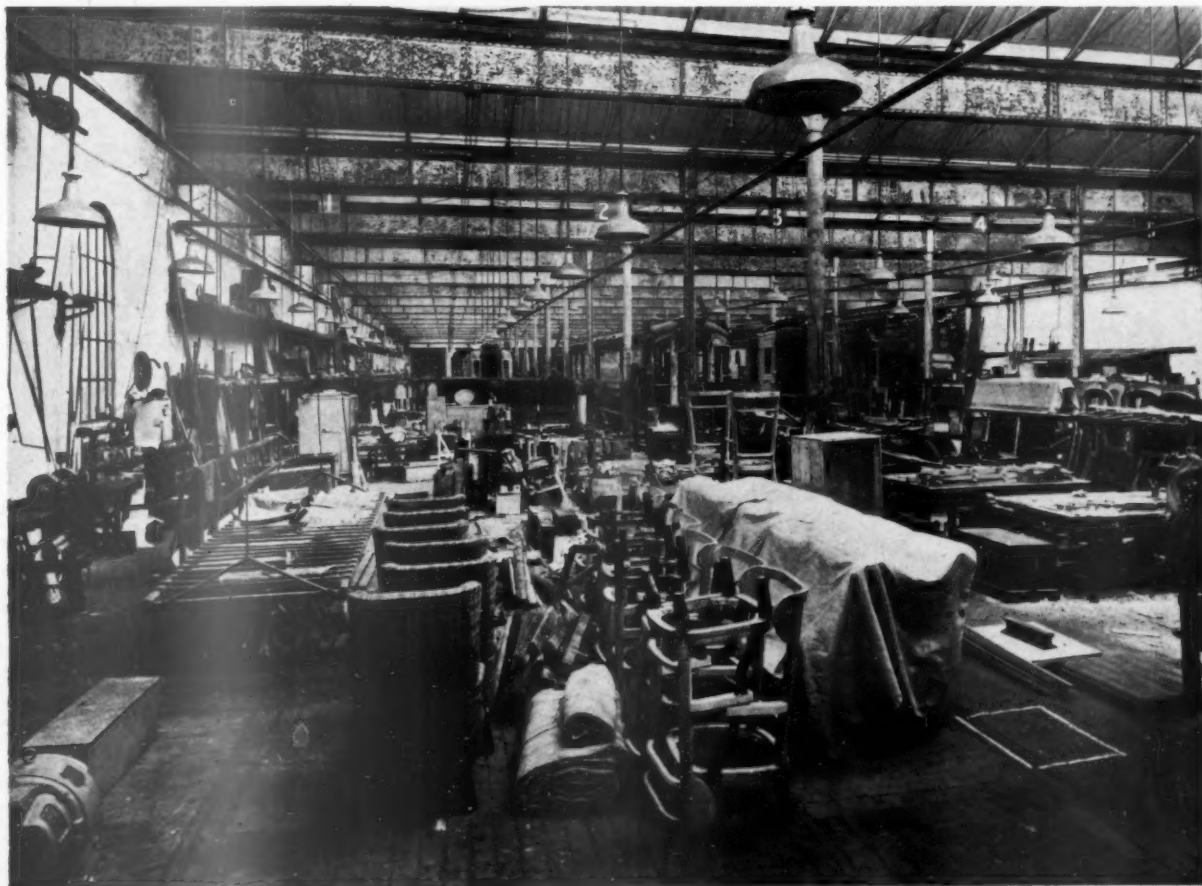
were represented on this committee, and the Pullman Car Company and the B.T.C. Hotels & Catering Services were consulted concerning catering.

It was not considered possible for the Pullman Car Company to operate these new services because they were not based on London, where the Pullman Car Company has all its installations.

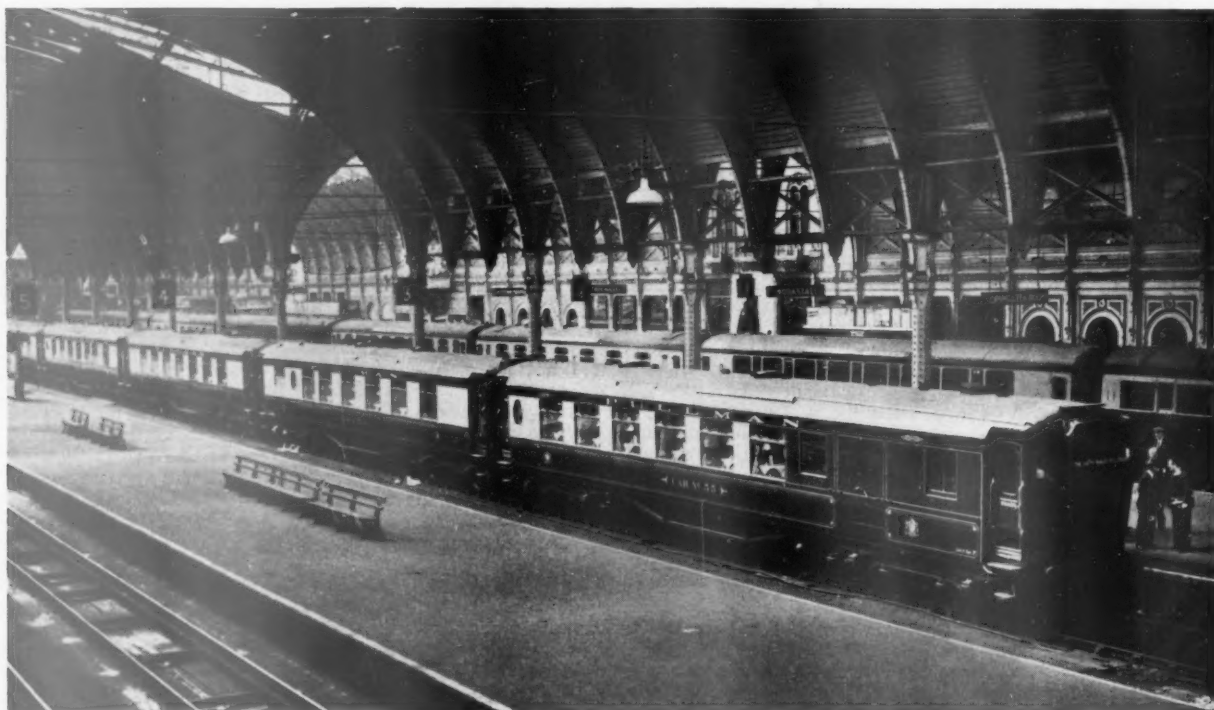
New Luxury Trains

This fact was recorded in the report; but the Commission rejected this view because it was considered that use should be made of the recently-acquired goodwill attending the name of Pullman. The scheme was reconsidered and it was decided to introduce three multiple-unit Pullman *de luxe* trains, one in the Midland Region, serving Manchester, Leicester, and London; and two in the Western Region, serving Bristol and London, and Wolverhampton, Birmingham, and London.

While these decisions were being arrived at it was laid down that the Metropolitan-Cammell Carriage & Wagon Co. Ltd. should be entrusted with the building of the trains and that, with the approval of the British Transport Commission and the Pullman Car Company, it would appoint an architect designer to style the trains. Mr. Jack Howe was appointed to work with the Design Panel and technical officers of the British Transport Commission.



Part of the Pullman works at Preston Park, near Brighton



(Above): The "South Wales Pullman" in Paddington Station ; (below): the "Daffodil Bar" of the same train

Mr. Howe and his colleagues had a completely free hand and, with an eye to the recommendations of the diesel committee, made certain plans and conditions before the board of the Pullman Car Company came into close consultation. This resulted in the adoption of some deviations from the traditional Pullman appearance and layout. The chocolate-and-cream was discarded in favour of a blue-and-white livery. The coat of arms for the long white panels was re-designed to fit the new shape of panel. Perhaps most important of all, it was decided to seat first class passengers at tables for four as well as at tables for two; in the traditional Pullman layout only tables for two were provided in first class cars.

Delayed Introduction

It was hoped to be able to introduce the first of these services, the "Midland Pullman," between Manchester Central and St. Pancras, on January 1, 1960, but, as the design was entirely new, certain teething troubles developed and the first train was not finally accepted by the Chief Mechanical Engineer of the British Transport Commission until the late spring of 1960 and it was decided then to put it into operation on July 4.

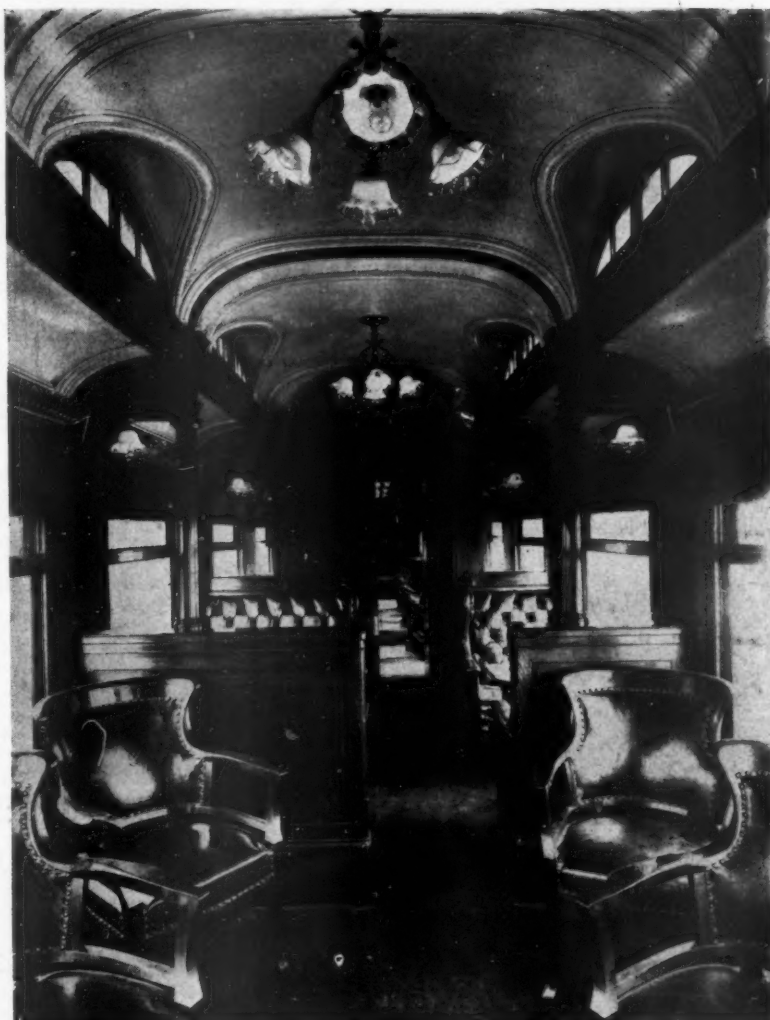
Meanwhile, Metropolitan - Cammell went ahead with the building of five other trains, for service on the Western Region. All of these were completed by the early summer of 1960. Because of staffing problems, their introduction was postponed until September 12, when the winter timetable came into operation.

The National Union of Railwaymen resisted the plan to operate these diesel-electric Pullman trains as Pullman cars, and indeed the union had resisted the introduction of the "South Wales Pullman" and the "Master Cutler." Its objection seems to have been based on the ineradicable impression that the Pullman Car Company is a private-enterprise undertaking. The permanent officials of the N.U.R. must be well aware of the purchase by the B.T.C. in 1954, but the prejudice persists. Even when it is explained that the Commission owns the whole of the Pullman Car Company equity capital, reference is sometimes made to the public holding of the Company's preference shares, and while these are publicly held the conviction will probably persist that the Pullman Car Company is private enterprise.

Manning the Trains

A vital factor in this controversy was the question of manning these trains. The British Transport Commission stated that they were being introduced to retain and perhaps re-capture some of the passenger traffic already lost to road and air, and the timing of the "Midland Pullman" was specifically determined to compete with the air services between Manchester and London.

As a first step to resolving this difficulty the board of the Pullman Car Company offered to abandon its separate agreement with the N.U.R. under which there was appreciable difference in working conditions as between the Pullman



Car "Devonshire" in 1900

staff and men working in British Railways restaurant cars, and instead to adopt the rates and conditions for restaurant car staff.

At the same time an undertaking was given jointly by the British Transport Commission and the Pullman Car Company in collaboration with the British Transport Hotels & Catering Services that no redundancy should occur among restaurant car staff as a result of the introduction of the new Pullman trains, and the Pullman Car Company undertook to offer all vacancies to existing restaurant car staff. The N.U.R. made another claim in this connection. This was that the men recruited in this way from restaurant cars should be treated as being on loan from the restaurant car services so that in case of need they could revert to their former service and pick up their former seniority. It was initially agreed that this period of loan should be six months, but later the claim was made that it should be for a year. The arrangement is now on an indefinite basis.

Staff so recruited wear the Pullman uniform and come under the Pullman Car Company management for discip-

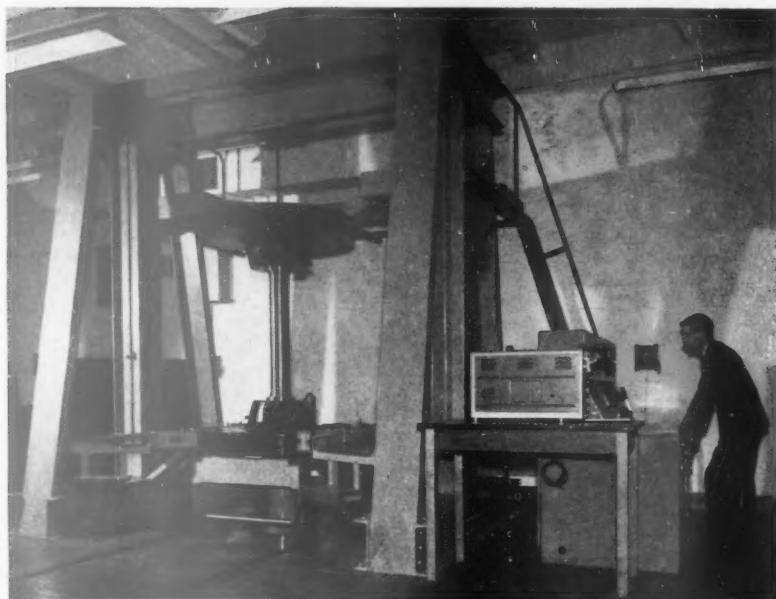
line, with the right of appeal jointly to the managements of the Pullman Car Company and to B.T.C. Hotels & Catering Services.

No alterations or reductions were made in the British Railways restaurant car services between Manchester and London as a result of the introduction of the "Midland Pullman" and there was, therefore, no direct redundancy. The Pullman Car Company was able to recruit staff based on Manchester. The train was introduced manned by restaurant car men on loan and five Pullman Car Company men allotted on a temporary basis to help its establishment. These five staff included a conductor, one senior chef, and three senior attendants in charge of stocks. Similar methods were followed in the Western Region trains.

NORTH EASTERN CLOSURES.—British Railways, North Eastern Region, has announced that Notten & Royston and Winterset & Ryhill Stations, on the Wakefield-Barnsley line, will be closed on January 2, 1961.

Axle-Fatigue Testing Machine

Designed to provide a means of testing to destruction full-size specimens in London Transport laboratory



Resonant fatigue test-machine for simulating in axle-size steel specimens the rotating bending stresses encountered in service

A TESTING machine, designed for investigating the fatigue strength of railway rolling-stock axles, has been installed in the new Central Research Laboratory of London Transport at Chiswick. It has been developed at Nottingham University to determine the strength of specimens of axle steel when they are subjected to a rotating bending stress.

The machine is of the resonant type driven by an electric motor through a slipping clutch which is incorporated to ease the starting and stopping conditions. The test specimens are of a typical axle size, being 6½ in. dia. and approximately 5 ft. long. The adoption of "full-size" specimens was made to eliminate any errors arising from the "scale effect" of uncertain magnitude in fatigue experienced when smaller specimens of axle steel are used.

Each end of the specimen is enlarged, and secured in a heavy disc. The complete assembly of test specimen and two discs has a natural frequency for transverse bending of the specimen of slightly less than 50 cycles per sec., and it is freely suspended from the centre of one disc by a wire rope, with the specimen axis vertical.

Variable-Speed Drive

The driving motor is a 25-h.p. d.c. machine, installed below floor level, and supplied from a Ward-Leonard set to provide variable speed. The motor drives a vertical shaft fitted, at the upper end, with an eccentric stub shaft. The eccen-

tricity is adjustable so that the applied stress can be varied, and the design is such that the rotating assembly remains balanced at all possible settings of the eccentric.

The circular motion of the centre line of the stub shaft is transmitted to a tube,

attached to the lower disc of the test specimen assembly, by means of a bearing and friction drive in the form of a special hydraulically-operated clutch. When the lower end of the tube is caused to move in a circular path at a speed corresponding to the natural frequency of the test specimen assembly, the latter vibrates and applies a rotating bending stress on the specimen.

The stress is measured by several resistance strain gauges, calibrated in position, and various protective devices are provided to enable the machine to be left running unattended.

In the illustration on the left, showing the testing machine installed in the laboratory at Chiswick, the operator is adjusting the motor drive. The console incorporates the strain-measuring apparatus, and safety devices.

Fatigue-Resistance Proved

Of two specimens which have been tested on the machine, one failed at a stress not greatly in excess of the expected fatigue limit (2,910,000 cycles at 16 tons per sq. in.). The other failed at a higher stress (640,000 cycles at 20 tons per sq. in.). Both specimens were subsequently broken open by static bending to expose the fatigue-fractured surfaces.

A related investigation is being carried out at Nottingham University dealing with residual stress distributions in cold-rolled axle wheel-seats. This investigation is being sponsored by the Research Co-ordination Committee of the British Transport Commission.



Surface of a fatigue fracture produced on the machine, exposed by static bending to break open the failed specimen

ELECTRIC RAILWAY TRACTION SECTION

Motive Power for J.N.R. Trunk Line

PRELIMINARY work on the construction of the 310-mile standard-gauge line between Tokyo and Osaka has already been started by the Japanese National Railways. Advantage is to be taken of the standard gauge to operate passenger trains at a maximum speed of 125 m.p.h., and the loading gauge will allow "piggy-back" transport of loaded road vehicles on flat wagons. The new line will be roughly parallel to the present 3-ft. 6-in. gauge line.

Multiple-unit electric trains will be used to operate both passenger and freight services on the new line. The stock will be similar in design to the limited express "Kodama" which was described in our issue of December 19, 1958. The multiple-unit design has been selected for passenger and freight traffic because it is possible to ease the effect of axle load on the track and structures as the load will be more evenly distributed among the axles of the motored railcar than in the case of a locomotive-hauled train. This contributes to faster running with reduced construction and maintenance costs. The adhesive weight per unit being high, it is possible to adopt a steeper grade than with locomotive haulage. This means a freer choice of track site with a saving in construction costs.

A passenger train set will consist of two to four units with four railcars to each unit. Each railcar will have four traction motors; the unit output will be some 1,900 to 2,700 kW. With a maximum speed of 125 m.p.h., the 310 miles from Tokyo to Osaka would be covered in about 3 hr.

The present 3-ft. 6-in. gauge line will continue to handle the bulk of the freight traffic, and freight operations on the new line will be confined to containers. A freight train will consist of three units with 10 cars in each unit; four motored railcars and six trailers. It will have the same output as the passenger train. Each train is to carry 150 containers and cover the 310 miles in $5\frac{1}{2}$ hr.

After an exhaustive study of power systems, 25-kV. single-phase a.c. electrification was found to be most appropriate for adoption. Two types of industrial frequency are in use in the Tokaido area: 50 cycles and 60 cycles. Dual-frequency rolling stock has been considered, but it is likely that the frequency will be changed at the substations on the 50-cycle section, which represents a quarter of the total mileage. Further studies are being made before a final decision is reached.

Considerable experimental work has been carried out to determine the most satisfactory body design for high-speed operation. Wind tunnel tests have been made on the basis of head-on wind pressure, resistance by skin friction, interference between track and under part of train, and resistance by trailing air. The results of these air-resistance tests have already been applied to the body design. As to the train draft, theoretical and experimental studies have been made in the field as well as with a water tank, with an emphasis on wind pressure, particularly at the time the train enters a tunnel. It was found that there was no particular difficulty when the tunnel is double track. Pantograph tests have been concentrated on the effect of wind on contact wire pressure at high speeds. It has been found that the shape of the pantograph bow can affect this upward pressure. In July of this year wind tunnel tests were carried out on various pantograph bows. Equipment for high-speed operation is now being designed as a result of these tests.

The basic fares and rates on the new line are to be the same as for the 3-ft. 6-in. gauge line. Supplements for express trains will probably be higher than at present. For door-to-door "piggy-back" traffic charges will be adjusted so as not to exceed the present charges for door-to-door transport including trans-shipment. The existing Tokaido line (Tokyo-Kobe) of the Japanese National Railway is the most important line in Japan, linking more than 40 cities, including industrial zones such as the Tokyo-Yokohama, Nagoya, and Osaka-Kobe areas. The length of the line is 367 miles, or 2.9 per cent of the total route mileage of the J.N.R. More than 36,000,000 people, around 40 per cent of the total population of the country, live along the line. For density of population the areas along this railway line are believed to be unparalleled in the world. The manufacturing output of the industrial zones constitute more

than 60 per cent of national production. Traffic on the Tokaido line is heavy; it accounts for about 24 per cent of the total passenger and about 23 per cent of the total goods tonnage. From 60 to 80 passengers and from 50 to 60 goods trains are run each way daily, and traffic is increasing. By 1962 the line will reach saturation point, and for this reason early completion of the standard-gauge line is an economic necessity.

Italian Luxury Trains

HIGH-SPEED luxury electric trains conveying a limited number of first-class passengers between principal centres are the Italian State Railways' answer to competition from the private motor-car and, to a lesser extent, perhaps from the aeroplane. When the 3,000-h.p. seven-car "ETR 300" sets, built by the Società Italiana Breda, and described in our issue of June 12, 1953, were placed in service in 1953, between Milan, Florence, Rome, and Naples over lines electrified at 3,000 V. d.c., doubts were entertained as to their ability to pay their way. Only four out of the seven vehicles were revenue-earning; the other three were restaurant car, kitchen car, and a combined staff, baggage and equipment car. Revenue seats numbered only 160, and there were additionally 56 seats in the restaurant car and 11 in each of the two observation saloons. The total weight of a set was 320 tons, or 2 tons per passenger. Four of the 10 bogies were trailers, and the other six each had two traction motors with individual capacities of 188 kW. one-hr. and 150 W. continuous. The cost of the relatively numerous staff presumably was thought to be justified by passengers' expenditure on refreshments, and so on, in addition to the first-class fare and supplement. The main purpose was not to make possible faster timings than those of the existing three-car *elettrotreni*, but to give a *de luxe* service supplementary to the semi-*de-luxe* services which had been operated for some time by the three-car sets. The standard of appointments, including air-conditioning on the Stone Carrier system, is high, and the sets are reported to run well over sections with many curves.

Considerable saving in weight per passenger has been achieved in a new type of luxury train, the "ETR 250," also built by Breda, and introduced with the intention of meeting the increased requirements of passenger traffic in Italy on lines where fast running is possible. The four-car set, formed of two twin articulated units, seats 146 first-class passengers, with meals service at the seats. There are 46 seats in the first and fourth cars and 54 in the second; in the third vehicle are the kitchen, pantry, and accommodation for staff, baggage, postal services, radio transmission and telephone services. While the observation lounge, characteristic of the "ETR 300" sets, has been retained in car No. 4, the front end of car No. 1 has been adapted to include a bar. Furnishing and décor are functional.

The structural parts are identical to those in the "ETR 300" sets. The latter are equipped with Scharfenberg couplers, and the "ETR 250" also, presumably, are so fitted. Three of the six bogies are motor-equipped. The body suspension includes helical springs and hydraulic shock absorbers. The six traction motors have a one-hr. rating of 250 kW. and continuous rating of 200 kW. They are series-excited with four poles with auxiliary poles and shunts for field weakening by exclusion of windings up to 65 per cent.

The total weight is 181 tons, so that the weight per revenue seat is 1.25 tons, much less than in the "ETR 300." The maximum speed is 112 m.p.h., against 98 m.p.h. for the seven-car trains as first built. Air conditioning is of the FS type.

In comparing the four- and seven-car trains from the revenue aspect, account must be taken of the reduction of passenger classes in 1956 from three to two; first-class passengers now include many who formerly would have travelled second. No comparison is possible between fares and other charges in 1953 and today. The reduction in weight and non-revenue space is expected to result in improved financial results.

The sets are the result of collaboration between the Società Breda Ferroviaria and Breda Costruzioni Elettromeccaniche e Locomotive, which studied the constructional details of the bodies and furnishings, and the State Railways.

French Lightweight Mixed-Traffic Locomotives

Bo-Bo design with single-motor bogies for service on lines electrified at 1,500V. d.c.



S.N.C.F. 2,900-h.p. mixed-traffic locomotives for 1,500-V. electrification

At the beginning of the Paris-Lyons electrification in 1950, a new mixed traffic Bo-Bo locomotive, class "8100," was introduced on the French National Railways. This marked a considerable advance on numerous forerunners of the same wheel arrangement which had been in service on the P.O.-Midi system. Since that time, d.c. locomotive development in France has concentrated on designs for higher speeds, and although these had a wide availability, there were still certain requirements not met to the best advantage either by the newer types or by the "8100" class.

Mixed-Traffic Design

A new mixed traffic locomotive now coming into service on the 1,500-V. d.c. lines of the S.N.C.F. is aimed specifically at filling this gap, which it does partly by taking advantage of experience gained with light and powerful Bo-Bo designs for the 50-cycle a.c. electrifications. It is known as the "9400" class, and is a Bo-Bo locomotive weighing only 59 tonnes, but with a continuous rating of 2,900 h.p. at 31 m.p.h.

This is the first French d.c. locomotive to have single-motor bogies with axles coupled through the gear trains. Some 40 are being built with a fixed gear ratio allowing a top speed of 81 m.p.h. (as compared with 65 m.p.h. in the "8100" class), but a few later units will have a variable-ratio arrangement similar to that of the "16500" series on the a.c. lines. The first locomotives with fixed-ratio gearing have already demonstrated by their performance that the variable-ratio arrangement can only be justified economically in a limited number of cases, such as those where axle-load

restrictions limit the range of different locomotive types which can be employed. In such circumstances a single locomotive with two performance characteristics, appropriate to top speeds of, say, 56 and 93 m.p.h., has obvious advantages.

The "9400" class locomotives are being built by the Compagnie Fives-Lille, Compagnie Electro-Mécanique, and Société le Matériel Electrique S.W. Principal particulars are as follow:—

Length overall	ft. in.
Bogie wheelbase	47 3
Bogie centres	7 2½
Wheel diameter	26 11
Weight	3 4½
Continuous rating	59 tonnes
	2,900 h.p. at 31 m.p.h.

The bogie frame is of welded construction, and one side member incorporates the gearcase, which also forms a support for the pinion end of the motor. A second motor support is provided on the opposite side member of the bogie. When the motor is in position it is further located by two lugs on its frame which rest on the bogie transoms. The drive from the pinion to each axle is taken through an intermediate gear to a final gearwheel coupled resiliently to the cardan shaft of the Jacquemin transmission.

Because the motor pinion serves as a coupling between the two axles of a bogie, a high degree of torsional resilience is provided between it and the armature shaft. The pinion shaft passes through the hollow armature shaft and is coupled to the latter at the end remote from the drive through a rubber ring sandwiched between a system of plates. This allows an angular displacement between pinion and armature of up to 20 deg.

The main bogie frame rests on each

equalising beam through four coil springs. It carries at each side two bearers for the swing links of the body suspension. These allow rotational movements between bogie and body, and in the absence of a conventional pivot and kingpin the tractive forces are transmitted to the main bogie frame by articulated links, and from the bogie to the body by traction bars attached at one end to lugs low down on the motor frame.

The body is a load-bearing structure with two side corridors connecting the driving cabs. A central equipment compartment is separated from the corridors by removable side panels of a light polyester glass-fibre material.

Power Circuit

A simple and unusual electrical power circuit has been adopted, taking advantage of the fact that the gear ratio and motor characteristics allow the locomotive to be started with the motors in parallel in most cases. Transition from series to parallel is, therefore, rarely required, and, when necessary, it is obtained by the open-circuit method, the controller being returned to "off." This simplifies the switching and circuit design compared with the usual shunt or bridge transitions which maintain tractive effort while the motors are being regrouped. The same arrangement enables a single set of starting resistances to serve for the two motors in common.

The controller is an adaptation to d.c. requirements of the air-operated circular pattern illustrated in our August 26 issue in connection with the French-built a.c. locomotives for Russia. It uses the same arrangement of selector contacts in concentric circles, these being connected to the resistance tapplings. Current is broken by four external contactors operating in synchronism with the rotary selector switches. Field-shunting is effected by five other contactors for each motor.

The starting resistances are grouped in six blocks, each including a motor-blower. In every block there are 13 withdrawable trays, one above the other, each containing 48 nickel-chrome resistance elements. These are shaped similarly to turbine blades, and are arranged parallel to each other, but the elements in successive layers are aligned so that the cooling air in its passage from the blower at the top to the exhaust at the bottom of the block follows a course with frequent changes of direction. Maximum contact between airstream and resistance elements is thereby assured. In each resistance block there is a space between the blower and the top tray of resistance elements, and these spaces are interconnected so that if a blower fails, the resistances affected will still draw some

(Continued on page 718)

Russian Clamps for Overhead Catenary

Newly-developed components for use on electrified lines of the Soviet railways

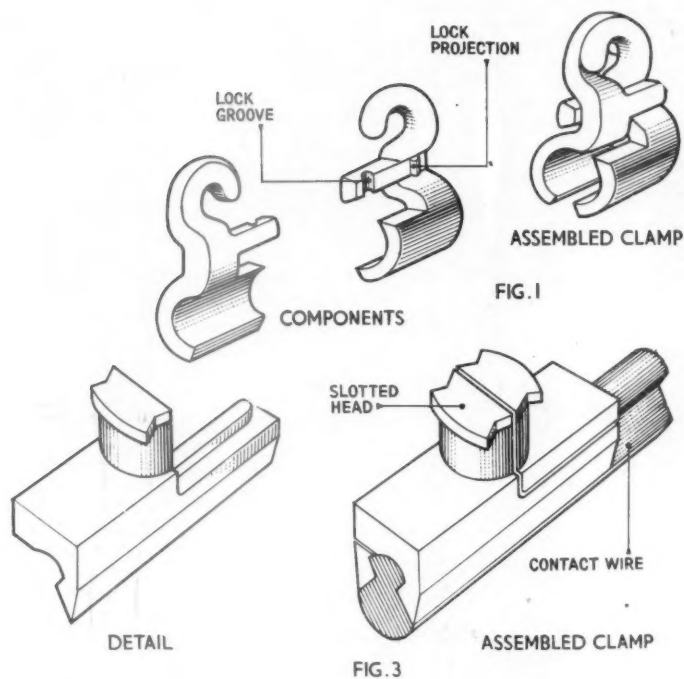


FIG. 3

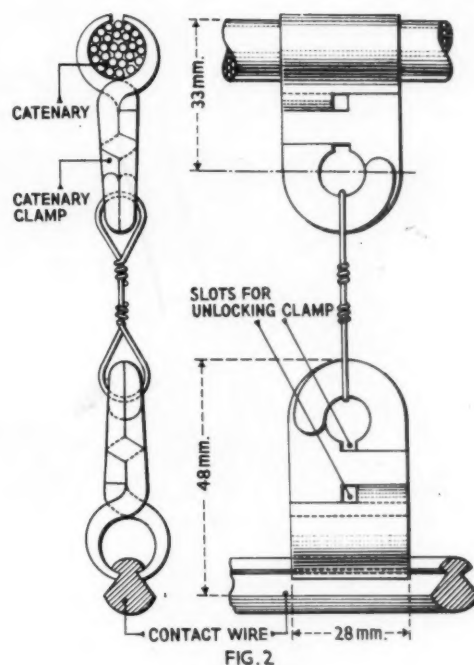


FIG. 2

Details of catenary clamp, hanger clamps in position, and detachable clamp

TO reduce the consumption of non-ferrous materials and also to facilitate installation and maintenance some novel overhead clamps were developed for use on electrified lines of the Soviet railways. A few of these evolved by A. M. Emelianzhev are described below.

The catenary clamp (Fig. 1) consists of two identical halves locked on assembly with the aid of the groove and the wedge. When assembling, the two halves are put on the catenary or the contact wire and moved toward each other until the locking parts are in position. These are then locked by tapping with a hammer. The clamps are released either with the aid of a hammer or by a screwdriver inserted into a slot provided for this purpose.

Absence of Clamping Components

A special feature of the design is the complete absence of clamping components, this appreciably facilitating production as the clamps can be made by casting or stamping without requiring any subsequent machining. The weight of a clamp assembly is 85 gr., this being only one-third of the weight of existing standard units. Tests have shown that a force of 1,500 lb. was required to pull the clamp off the catenary and some 800 lb. to pull it off the contact wire.

Another design now undergoing extensive testing is shown in Fig. 3. This also consists of two components secured in a

holder by the slotted head; the holder (Fig. 4) is turned through 90 deg. to secure the assembly. A single-piece holder is shown in Fig. 5, the contact wire being secured with the aid of a wedge.

Reduction in Maintenance

The new designs are of considerable advantage because they dispense with the usual clamping aids such as bolts, washers and split pins, they weigh less and they

require less maintenance. Thus while the standard Soviet overhead clamp consists of eight components and weighs 600 gr. the new clamp has only two components and weighs only 120 gr. They require a force of 1,950 lb. and 1,900 lb. for pulling off the contact wire vertically and laterally, respectively.

Further work is now in hand in connection with design and development of plastic clamps and some models are already undergoing service tests.

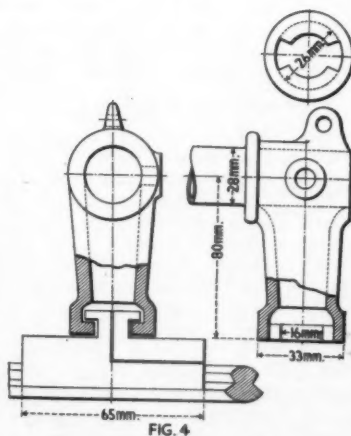


FIG. 4

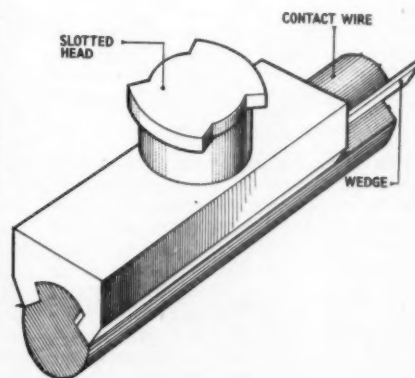
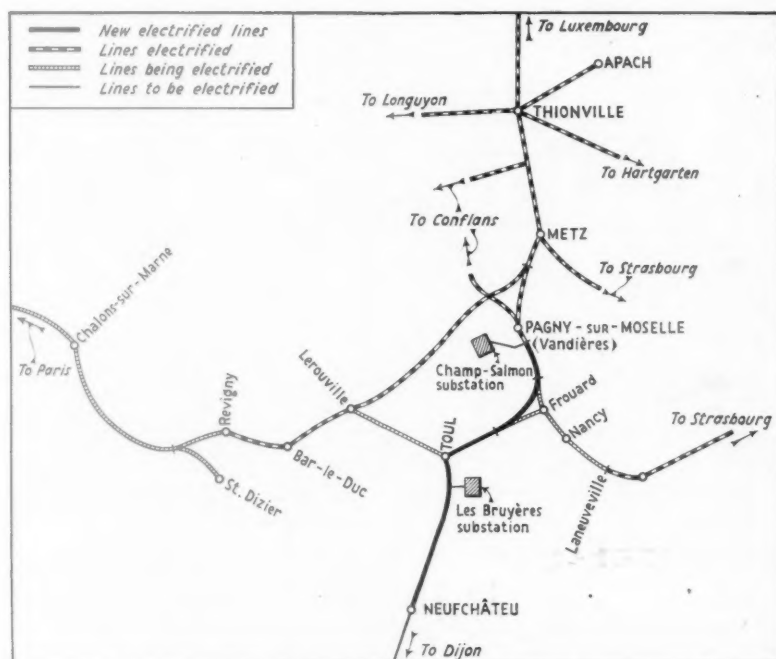


FIG. 5

Detachable clamp in position and single-piece clamp

S.N.C.F. Electrification to Neufchâteau

First step in conversion of north-south route connecting Lorraine industrial zone with the Rhône valley



Progress of electrification in Eastern Region, S.N.C.F., showing conversion completed to Neufchâteau, on section connecting with Rhône Valley main line

THE latest stage in the Est-Paris 25-kV., 50-cycle a.c. electrification of the French National Railways is the conversion of 58.4 miles from Pagny-sur-Moselle to Neufchâteau. Between Frouard and Toul, the route follows the Paris-Strasbourg main line, resulting in the electrification of some 15½ miles of the 43½-mile section between the present limits of the overhead wire at Lerouville and Laneuveville. The primary importance of the new work is as a step towards providing a north-south electrified line to connect the industrial area of Lorraine with the Rhône valley via Dijon. A preliminary phase, completed on April 24, 1959, was the linking of Pagny-sur-Moselle with Metz and Conflans-Jarny by short sections of new electrification.

Official Inauguration

The official inauguration of the Pagny-Neufchâteau electrification took place on September 21 last. At Frouard the electrification follows the avoiding line, and trains serving the station and proceeding to Nancy continue for the present to be steam-hauled or worked by railcars. They include long-distance services from Metz and beyond to the South, which reverse in Nancy Station, returning to Frouard to take the southern spur of the triangle for Toul and Neufchâteau. These arrangements will continue until December, when the sections from Frou-

ard to Laneuveville, and from Toul to Lerouville, are due for electrification.

Trains on the Paris-Strasbourg line, which at present change to steam traction at Blainville, will then be electrically-hauled as far as Bar-le-Duc (155 miles from Strasbourg). Although the overhead line extends for the further 10 miles to Revigny, this is because the latter place is the site of a feeder station; for operating purposes, Bar-le-Duc is a more convenient point for changing locomotives. Similarly, locomotives have been changed up to now at Blainville, although the actual end of the electrification from Strasbourg at present is Laneuveville.

Further Electrification

Further target dates for continuing the electrification to Paris are May, 1961, for Revigny to Chalons-sur-Marne; October, 1961, for Chalons-sur-Marne to Chateau-Thierry; and summer, 1962, for Paris to Chateau-Thierry.

Power supplies for the Pagny-sur-Moselle to Neufchâteau line are taken from two substations, at Champ-Salmon, near Pagny, and Les Bruyères, near Toul. Each is equipped with two 63/25kV., 12MVA. transformers. New sectioning cabins are spaced at intervals along the route. On sections where automatic colour-light signalling already existed, the track circuits have been converted with electronic equipment

generating audio-frequency or pulsed inputs. All overhead telephone and telegraph lines have been replaced by cable routes and a repeater cable has been installed to counteract attenuation. Southward extension of this electrification from Neufchâteau to Dijon is programmed for the period 1962-65.

French Lightweight Mixed-Traffic Locomotives

(Concluded from page 716)

cooling air from the adjacent blocks. It has been shown in practice that no damage to the resistances results if a heavy train is started with one blower out of action.

Six weak-field steps can be used in each motor grouping, and are obtained by diverter resistances with an inductive shunt in each motor field circuit. Minimum field is 30 per cent. This gives a tractive effort of 5 tonnes at the maximum speed of 81 m.p.h., and a current through each motor of approximately 650A. A small amount of armature shunt is introduced automatically on notch 1 when starting the locomotive to reduce the size of notching resistance required. In the first two locomotives the armatures are shunted automatically on any series notch by an electronic relay system if wheelspin develops. In three other locomotives the driver can shunt the rear motor if slipping develops on the parallel notches.

Traction Motors

The traction motors have been designed to provide their full horsepower at a very low speed (38 per cent of the maximum) so that heavy goods trains can be worked in full parallel at speeds between 25 and 37 m.p.h. Extended field-weakening was necessary to provide the top speeds required on other duties, and the motors therefore have compensating windings to improve the weak-field commutation. By these means a ratio of 1:2.8 is obtained between the speed at which the motor delivers its continuous horsepower in full-field (625 r.p.m.) and the speed in minimum field corresponding to the same horsepower (1,425 r.p.m.). The current in both cases is 760A. Current at starting may go up to 1,300A, giving a tractive effort of 30 tonnes. On test runs the first of these locomotives has developed up to 32 tonnes (1,400A. per motor) in certain cases even in series working, and 25 tonnes was frequently attained. Starting in parallel, with current limited to 1,200A. per motor, efforts of 20 to 25 tonnes were maintained up to 18-21 m.p.h., and on one occasion 26.7 tonnes was recorded at the drawbar in minimum field.

RAILWAY NEWS SECTION

PERSONAL

Mr. H. F. P. Plumridge, who has recently retired from the position of General Manager, Ghana Railways & Harbours Administration, was born in 1905 and educated at Castle Hill, Ealing, Ealing County School, and the London School of Economics. He began his railway career in 1936 with the Nigerian Railway as Assistant Accountant. In 1939 he was appointed Administrative Assistant in the General Manager's office,

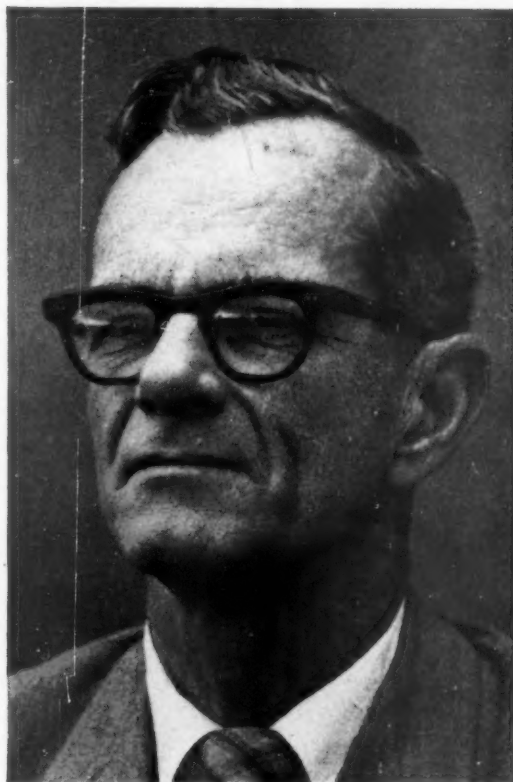
and became Senior Engineer (Civil) in the following year. In 1955 he was transferred to Office Engineer in the Chief Civil Engineer's office at Wellington, and was promoted to be Projects Engineer in that office in 1958. Mr. Holst is an associate member of the Institution of Civil Engineers, and of the New Zealand Institution of Engineers.

Mr. E. L. Taylor has been appointed a director of the Western Welsh Omnibus Co. Ltd., and has been elected Chairman in

monwealth Railways, graduated as Bachelor of Civil Engineering from the University of Queensland in 1933. To gain experience in the practical side of engineering, he spent the next year on Main Roads construction. In April, 1934, he joined the Queensland Government Railways service as Assistant Engineer, and served in that capacity in every district of every Division in the State, with the sole exception of the Townsville district of the Northern Division. In 1951 he was promoted to be Civil Engineering Assistant



Mr. H. F. P. Plumridge
General Manager, Ghana Railways & Harbours
Administration, 1957-60



Mr. J. R. A. Walker
Appointed Chief Civil Engineer, Commonwealth
Government Railways, Australia

and in 1940, Administrative Assistant Grade I. During this period he acted on various occasions as Principal Assistant to the General Manager. He was appointed Principal Assistant (Staff & Organisation) in 1948, and Assistant General Manager (Staff & Organisation) in 1950. He was promoted to be General Manager in January, 1957.

Mr. E. A. O. Holst, Projects Engineer in the Chief Civil Engineer's office, Wellington, New Zealand Railways, who has been appointed Assistant Chief Civil Engineer, joined the New Zealand Railways Department at Christchurch in 1926 as a civil engineering cadet. He transferred to Ohakune, on the North Island Main Trunk line, in 1927, and became a draftsman in 1931. A year later he transferred to Wanganui, where he was promoted to be Assistant Engineer in the District Engineer's office in 1939. He was appointed to the position of First Assistant Civil Engineer in the District Civil Engineer's office at Dunedin in 1947,

succession to Mr. John Spencer Wills, who has resigned from the board. Mr. W. T. James, Managing Director, in view of his impending retirement, and Mr. K. W. C. Grand have also resigned from the board. Mr. W. M. Dravers and Mr. J. R. Hammond have been appointed to the board.

Crofts (Engineers) Limited has announced that the following have been appointed to sectional Directorships:—Mr. E. J. Holdin, General Sales Manager, to be Home Sales Director; Mr. F. Rotheray, Overseas Sales Manager, to be Overseas Sales Director; Mr. H. W. Cameron, London Area Manager, to be London Area Director; and Mr. A. Spencer, Commercial Manager, to be Commercial Director.

Mr. J. R. A. Walker, B.C.E., Senior Engineer (Construction), Commonwealth Government Railways, Australia, who, as recorded in our November 11 issue, has been appointed Chief Civil Engineer, Com-

monwealth Railways, graduated as Bachelor of Civil Engineering from the University of Queensland in 1933. To gain experience in the practical side of engineering, he spent the next year on Main Roads construction. In April, 1934, he joined the Queensland Government Railways service as Assistant Engineer, and served in that capacity in every district of every Division in the State, with the sole exception of the Townsville district of the Northern Division. In 1951 he was promoted to be Civil Engineering Assistant

CANADIAN NATIONAL RAILWAYS APPOINTMENTS

Following modifications in the structure in the organisation of Canadian National Railways, the subsequent appointments have been announced:—

Atlantic Region

Mr. D. V. Gonder to be Vice-President

and Mr. J. W. Demcoe to be General Manager.
St. Lawrence Region

Mr. W. H. Kyle to be Vice-President;
Mr. J. A. McDonald, General Manager.
Great Lakes Region

Mr. E. Wynne to be Vice-President.
Prairie Region

Mr. J. R. McMillan to be Vice-President;
Mr. E. J. Cooke, General Manager; Mr. I. Lucas, Special Assistant to Vice-President;
Mr. W. A. Brown, Comptroller; Mr. O. E. Berringer, General Manager of Terminal Development.

Mountain Region

Mr. G. R. Graham to be Vice-President;
Mr. W. D. McPherson, General Manager;
Mr. S. D. Thomas, Comptroller.

Royal Technical College, Glasgow. Following an apprenticeship, from 1918 to 1923, with the North British Locomotive Co. Ltd., he entered the service of the London & North Eastern Railway in the Chief Mechanical Engineer's Department at Cowlairs Works. After a period in the Drawing Office he held various appointments, and, in 1934, became Assistant to the Works Manager (Plant & Road Motors). Three years later he was appointed Assistant to the Works Manager (Carriage & Wagon) and in 1942 became Assistant to the Works Manager (Locomotives), Cowlairs. Three years later he was Acting Assistant District Locomotive Running Superintendent, Western District, Scotland, returning to Cowlairs

Central Staff, also representing Mr. K. W. C. Grand, member, B.T.C. Mr. J. A. Broughall, Electrical Engineer (Development), British Railways Central Staff, also representing Mr. S. B. Warder, Chief Electrical Engineer, British Railways Central Staff.

Scottish Region

Mr. J. Ness, General Manager; Mr. G. W. Stewart, Assistant General Manager; Mr. S. E. Raymond, Assistant General Manager (Traffic); Mr. H. C. Orchard, Chief Civil Engineer; Mr. J. Sinclair, Mechanical & Electrical Engineer (General); Mr. G. W. Forder, Mechanical & Electrical Engineer (Workshops); Mr. A. Watt, Electrical Engineer; Mr. W. Marshall, Outdoor Machinery & Electrical Assistant; Mr. E. R.



The late Mr. C. E. Jefferson
Vice-President of Traffic, Canadian Pacific
Railway, 1950-57



The late Mr. J. J. Finlayson
Chief Mechanical & Electrical Engineer, British Railways,
Scottish Region, 1959-60

The late Mr. C. E. Jefferson, formerly Vice-President of Traffic for the Canadian Pacific Railway, whose death was recorded in our December 2 issue, was born in Boston, Mass., U.S.A., and joined the C.P.R. at Montreal in 1913. He became General Freight Agent there in 1921, and moved to Winnipeg in the same year. In 1927 he became Assistant Freight Traffic Manager for Western Canada. He returned to Montreal in 1930 as Freight Traffic Manager for the system and, in 1948, became General Traffic Manager with jurisdiction over all C.P.R. traffic, rail, freight and steamship services. Mr. Jefferson was appointed Vice-President of Traffic of the Canadian Pacific Railway in 1950, in which position he served until his retirement in 1957.

The late Mr. J. J. Finlayson, M.I.Mech.E., Chief Mechanical & Electrical Engineer, British Railways, Scottish Region, whose death was recorded in our December 9 issue, was educated at Allen Glen's School and the

following year as Assistant Works Manager. In March, 1947, he was appointed Locomotive Works Manager at Gorton, and Works Manager (Locomotives Outdoor Machinery & Electrical), Swindon, in January, 1952. He became Assistant Mechanical & Electrical Engineer, Derby Headquarters, London Midland Region, British Railways, in 1956, and in 1959 took up the position of Mechanical Engineer (General) British Railways Central Staff. In January of this year he was promoted to be Chief Mechanical & Electrical Engineer of the Scottish Region.

The funeral took place at Craigton Crematorium, Glasgow, on December 6. In addition to the family mourners, the following were among those present:—

British Transport Commission

Sir John Denholm and Mr. P. Meldrum, members; Mr. C. A. Scott, Secretary, Scottish Area Board; Mr. J. F. Harrison, Chief Mechanical Engineer, British Railways

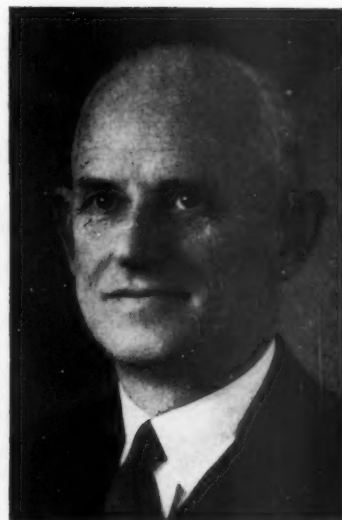
Parsons, Assistant (Modernisation) Carriage & Wagon; Mr. G. Guthrie, Works Manager, St. Rollox; Mr. W. Clark, Works Manager, Cowlairs; Mr. D. F. Gowen, Regional Establishment & Staff Officer; Mr. A. Philip, Assistant Regional Establishment & Staff Officer; Mr. D. Frew, Regional Accountant; Mr. G. L. Nicholson, Traffic Manager, Glasgow; Mr. J. M. Fleming, Traffic Manager, Edinburgh; Mr. J. B. Baxter, Estate and Rating Surveyor (Scotland); Mr. H. Cheetham, Supplies & Contracts Manager; Mr. H. W. Hunter, Assistant (Special Duties) to General Manager; Mr. A. W. Newberry, Chief of Police; Dr. W. A. R. Mailer, Regional Medical Officer; Dr. T. Sharp, Assistant Regional Medical Officer; Mr. B. J. Henstock, Assistant Signal Engineer; Mr. C. B. Glenesk, District Engineer (Glasgow South); Mr. C. J. Lamb, Running & Maintenance Engineer (Glasgow & South West Division); Mr. J. H. Wylie, Treasurer; Mr. J. Blair, former Carriage & Wagon Engineer; Mr.

**Mr. R. L. Moorcroft**

Appointed Architect, Chief Civil Engineer's Office, Paddington, Western Region

**Mr. F. G. Richens**

Appointed Assistant (Modernisation), General Manager's Office, Western Region

**The late Mr. J. R. Hind**

Public Correspondence Officer, Public Relations Department, B.T.C., 1949-60

W. H. Underwood, former District Motive Power Superintendent (Glasgow South); Mr. A. Stewart, General Manager, The Caledonian Steam Packet Co. Ltd.

Western Region

Mr. R. A. Smeddle, Chief Mechanical & Electrical Engineer, also representing Mr. R. F. Hanks, Chairman, Western Area Board, B.T.C.; and Mr. J. R. Hammond, General Manager.

Southern Region

Mr. M. S. Hatchell, Mechanical and Electrical Engineer (Workshops), also representing Mr. W. J. A. Sykes, Chief Mechanical & Electrical Engineer.

North Eastern Region

Mr. T. Matthewson-Dick, Mechanical & Electrical Engineer (Maintenance), also representing Mr. H. A. Short, General Manager, and Mr. M. G. Burrows, Chief Mechanical & Electrical Engineer.

Industry

Mr. T. Coughtrie, Chairman, and Lord Reith, Vice-Chairman, North British Locomotive Co. Ltd., and Mr. G. T. Owen and Mr. Robert Arbuthnott, directors; Mr. J. A. Keyden, General Manager; Mr. H. C. W. Westwood, Deputy General Manager; Mr. T. P. Stroud, Works Manager; and Mr. A. Hood, Pressed Steel Co. Ltd., Railway Division.

National Union of Railwaymen

Mr. D. Lauder, Glasgow & West of Scotland Organiser; Mr. J. A. Matheson, Edinburgh & East of Scotland Organiser.

Mr. R. L. Moorcroft, D.A. (Manc.), A.R.I.B.A., Principal Assistant Architect, British Transport Commission, who, as recorded in our December 9 issue, has been appointed Architect, Chief Civil Engineer's Office, Paddington, British Railways, Western Region, was born in 1925 and educated at Manchester Grammar School and the Regional College of Art, Manchester. During the 1939-45 war he served with the Royal Engineers and the Queen Victoria's Own Madras Sappers & Miners, R.I.E. Since that time he has, with the exception of a short break, served in the Territorial Army (R.E.). On completion of his training, he joined the Cheshire County Architect's Department, and joined the Esso Petroleum Co. Ltd., in 1951. In December, 1955, he joined the British Transport Commission as a Sectional Architect and was promoted to be Principal Assistant Architect in January,

1958, which post he now vacates to take up his new appointment.

Mr. F. G. Richens, recently engaged in special duties in connection with British Railways, Western Region, modernisation plans, who, as recorded in our December 2 issue, has been appointed Assistant (Modernisation), General Manager's Office, Paddington, joined the Great Western Railway in 1921 in the Chief Mechanical Engineer's Office at Swindon, and after varied experience removed to Paddington in 1937 as Assistant Editor of the Great Western Railway Magazine. He transferred to the General Manager's Office in 1940, and was engaged for some years on the section dealing with rolling stock & supplies. In 1951 he was appointed Secretary of the inter-regional Lightweight Trains Committee whose work resulted in the purchase of the first group of diesel multiple units for use on British Railways. Later, he was seconded to special duties in connection with the Western Region plan of modernisation, and has played an active part in the development, progressing and control of the Region's programme, with particular responsibility for diesel and freight schemes.

Mr. H. J. J. McMorrow, Senior Assistant Stationmaster, Victoria, British Railways, Southern Region, has been appointed Stationmaster, Wimbledon.

THE INSTITUTION OF LOCOMOTIVE ENGINEERS
The following have been entered on or transferred in the register of members of The Institution of Locomotive Engineers:—

Member

Mr. K. Beaglehole, Assistant to General Manager, Traction, English Electric Co. Ltd., London.

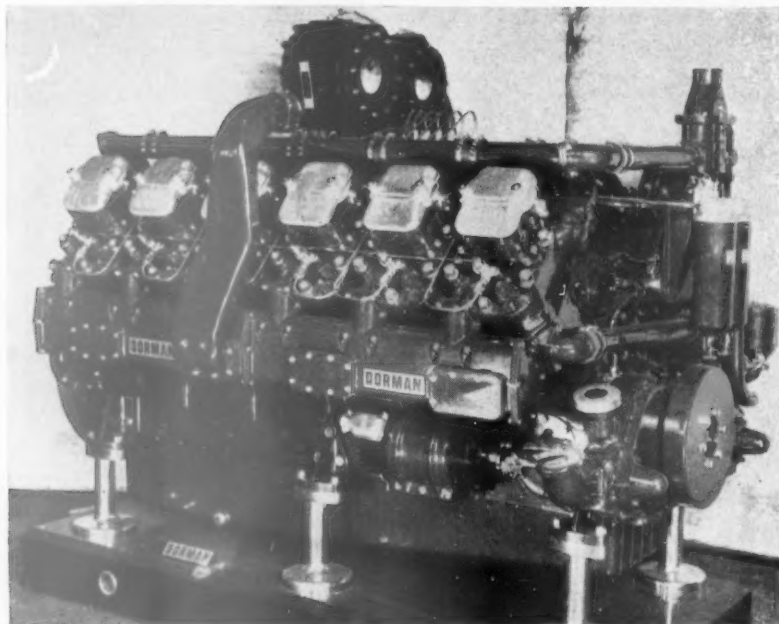
Associate Members

Mr. J. C. Bell, Chief Mechanical & Electrical Engineer's Department, Doncaster, British Railways, Eastern Region; Mr. H. Cameron, Senior Design Engineer, English Electric Co. Ltd., Rugby; Mr. D. R. Clarke, Senior Design Engineer, Diesel Engine Division, English Electric Co. Ltd., Rugby; Mr. F. H. Lewis, Development Assistant, British Railways Locomotive Performance & Efficiency Development Unit, Nelson Street, Derby; Mr. O. A. Scannell, Traction Engineer, English Electric Co. Ltd., London.

We regret to record the death on December 1 of Mr. J. R. Hind, A.M.Inst.T., Public Correspondence Officer, Public Relations Department, British Transport Commission. Mr. Hind joined the North Eastern Railway at Newcastle in 1910, and in 1915 was appointed Personal Assistant to the General Manager, N.E.R., at York and Westminster, dealing with confidential, staff and Parliamentary matters. After the formation of the former L.N.E.R., he was selected to inaugurate the Press Section of the Chief General Manager's Office at Kings Cross in 1924. In 1931 he was appointed British Railways' Press Officer and a member of the Advertising & Public Relations Committee, acting as spokesman to the Press on all matters affecting the British Railways, the Railway Companies Association, Railways Staff Conference & Railway Clearing House. Before the outbreak of war in 1939, he was actively engaged with the Square Deal Campaign, and was appointed to the staff of the Railway Executive Committee at their headquarters, serving in London throughout the emergency 1939-1944. He was re-appointed British Railways Press Officer at Palace Chambers, Bridge Street, Westminster, in 1944, and in 1948 joined the Railway Executive staff under General Sir William Slim. In 1949 he was appointed Public Correspondence & Suggestions Officer, Railway Executive, and later became Public Correspondence Officer, British Transport Commission. Mr. Hind was author of the "Book of the Railway," and has assisted numerous authors, broadcasters, film producers and lecturers. He has produced colour films and filmstrips, and visited railways in the United States and Europe.

The funeral took place at St. John's Church, Greenhill, Harrow, on December 6. In addition to family mourners, the following were among those present: Mr. D. S. M. Barrie, Assistant Secretary General, British Transport Commission, also representing Mr. K. W. C. Grand, member of B.T.C.; Mr. A. D. S. Betts, Assistant to Chief Officer (Parliamentary) B.T.C.; Mr. C. R. Francis, Assistant (Public Correspondence) B.T.C., also representing Mr. J. H. Brebner, Public Relations Adviser and Mr. Eric Merrill, Chief Public Relations Officer; Mr. D. W. Aldred, Senior Assistant to Treasurer, B.T.C.; and Mr. J. W. Dunger, Formerly Eastern Region Assistant Commercial Superintendent (Passenger).

NEW EQUIPMENT AND PROCESSES



Engine Range Extended

WITH the introduction of a turbocharged 12-cylinder vee engine, the Dorman range of rail-traction diesel engines has been extended to 685 h.p., at 1,800 r.p.m. The new 12QAT engine is the highest powered of the maker's "Q" Series; another version is available with normal aspiration.

The dry weight of the turbocharged unit is about 7,500 lb., the overall length 81 in.; width 50 in.; and height 48 in. With a bore and stroke of 6.25 and 6.5 in., the 12QAT has a swept volume of 2,393 cu. in. (39.2 litres) and a piston speed of 1,940 ft. per min. at 1,800 r.p.m.

The crankcase and cylinder unit is a rigid cast-iron structure extending below the crankshaft centre-line. Flanged chrome-hardened wet liners are clamped by individual cylinder heads. The counter-weighted crankshaft is an alloy-steel stamping with induction-hardened pins and journals. Pre-finished steel-backed copper-lead bearings are secured by underslung caps. Crankshaft end thrust and location is taken on the rear bearing.

The two cylinder banks are set at 90 deg. and the connecting rods operate side by side on a common crankpin. To permit the rods to be withdrawn upwards through the cylinder bores the big ends have an angular split. Side cover plates on the crankcase provide access to the bearings. Silicon-bronze is the material of the small-end bush and the connecting rods are drilled for piston-pin lubrication. Low-expansion aluminium alloy is used for the pistons which have three pressure and two scraper rings. There is one inlet and one exhaust valve per cylinder, the valves being stellite tipped and faced, with chrome flash on the exhaust stems. The valve guides and seats are in hardened and tempered iron alloy.

Two Simms block-type fuel-injection pumps are mounted in the vee of the cylinders. The engine-speed governor is incorporated in one pump. Multi-hole fuel injectors are mounted outboard. At the flywheel

end are helical timing gears driving the two camshafts and the fuel-injection pumps. At the free end is a gear train incorporating the water-pump and dynamo drives and two auxiliary power-take-off shafts. Belt drive is provided for independently mounted air compressors.

The wet-sump lubrication system incorporates a triple-canister full-flow replaceable-element filter unit and a Glacier centrifugal by-pass filter. The turbochargers, one for each bank, are mounted

on the inlet manifolds on the top of the engine. Engine starting is by twin axial-type electric starter motors.

The Dorman "Q" range, with a common bore and stroke, for power outputs of 80-685 h.p. is built in single-bank horizontal and vertical units of five and six cylinders and in eight- and 12-cylinder vee units.

Further details may be obtained from W. H. Dorman & Co. Ltd., Stafford.

Decorative Wood Laminates

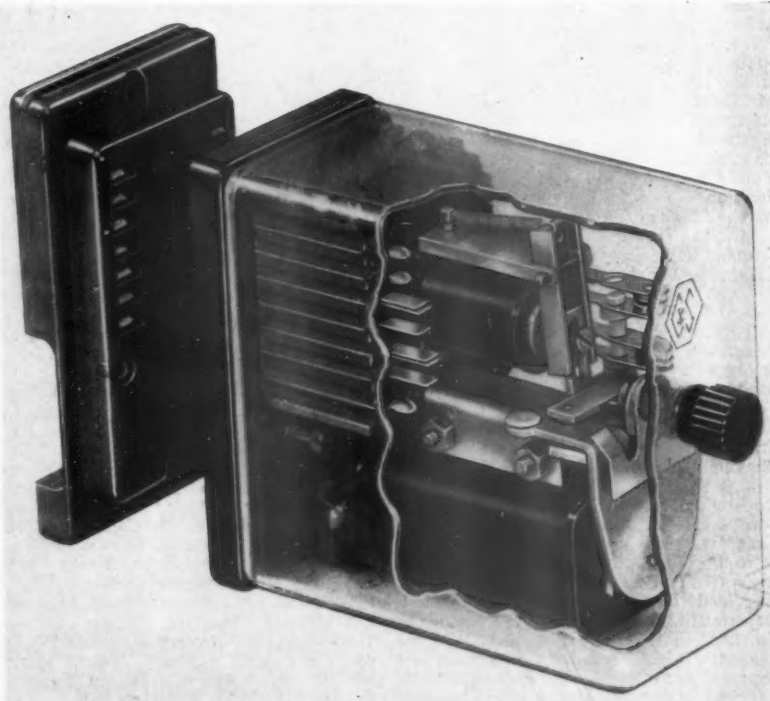
BELFORT real wood laminates, hitherto available only in the five standard woods (figured mahogany, figured limba, sapele, makore, and afrormosia), are now available in virtually any wood used for decorative purposes. For example, two not widely known, African silver greywood and pao rose, both possess outstanding beauty and character.

All non-standard woods are made only in a minimum quantity of 24 sheets but the architect or designer may inspect the veneer before the sheets are laminated. Laboratory pressings made with these veneers are available for inspection in 24 hr. In addition to the standard thickness of 1/16 in. they are available as a board with a hardboard core about 5/32 in. thick.

Further details may be obtained from the manufacturers, Bonded Laminates Limited, C. H. N. Veneer Mills, Chisenhale Road, London, E.3.

Plug-in Latching Relay

CLIFFORD & SNELL LIMITED, has added to its all-British standardised plug-in relay system a latching relay with electrical release, as illustrated. It can be regarded as a bi-stable or "memory" relay,



as a short pulse to the main coil results in a change in the contact positions that persists until a pulse is given to the release coil.

Both coils are continuously rated and can be operated from d.c. or a.c. Up to three change-over or five pairs of make-or-break silver contacts can be fitted, and all materials, including the transparent cover, are non-flammable and fully tropical.

The range also includes a latching relay with manual reset; relays with magnetic blow-outs that can switch inductive loads even on d.c. mains; plug-in time-delay units; flasher units, and pulse producing relays.

Further details can be obtained from the sole distributor, D. Robinson & Co. Ltd., 717, London Road, Hounslow, Middlesex.

Side Loading of Freight

THE Lancer Sideloader is specially designed for the transhipment of freight between railway wagons and road vehicles. The range has been extended to cover 16 basic standard sizes, with capacities from 3,000 to 20,000 lb.

The 800 series Sideloader is particularly suitable for handling containers. The illustrations show the operation of an 8-ton capacity version unloading a container from a railway wagon and transferring it on to a trailer. The machine carries a mast which can traverse the width of the deck to enable lifting forks to be placed beneath the load. After the load is lifted off the wagon it is lowered on to the deck of the machine for transporting to the road vehicle. The reverse process is then carried out for lifting the load on to the vehicle.

Sizes in the 800 series consist of 6-, 7-, and 8-ton capacities at 33-in. load centre, and 20,000-lb. capacity at 30-in. load centre. Power for all operations is provided by a Ford 6D six-cylinder diesel engine, developing 81 b.h.p. at 1,800 r.p.m. The drive to the road wheels is through a Brockhouse torque converter to a final-drive chain case containing a roller triple chain, thence by propeller shaft to the back axle, which has an 8.25 : 1 ratio overslung worm gear.

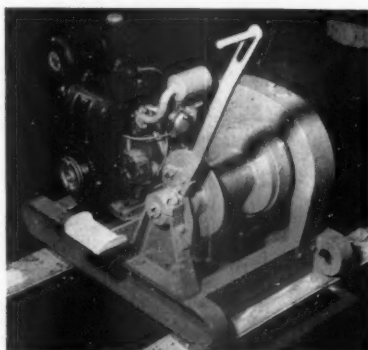
The lifting and tilting movements of the forks, and the traversing of the mast are effected hydraulically by a low-pressure, triple-filtered system. Hydraulic power is supplied by a Hamworthy Hydrex pump, driven through a Hardy Spicer shaft from the engine crankshaft. Mast traversing is by two chains actuated by sprockets on a shaft

rotated by two double-acting hydraulic cylinders. Hydraulic control of the forks allows a range of movement between 6 deg. up and 4 deg. down. The standard lift height is 10 ft., but heights up to 24 ft. can be arranged for if required. Lifting speed is 60 ft. per min., traversing speed is variable, up to a maximum of 60 ft. per min., and maximum speed of travel is 27 m.p.h.

The steering is power-assisted and the brakes, acting on all four wheels, are servo-hydraulic. A 12-V. electrical equipment is provided, which includes normal vehicle lighting, and engine starting.

The length of the machine is 19 ft., the overall width 8 ft. 6 in., and the height over cab 9 ft. 3 in. The wheelbase is 11 ft. 6 in., and the track 7 ft. 4 in. The unladen weight of the 6-ton machine is 16,800 lb., the 7-ton machine is 17,920 lb., and the 8-ton machine 18,400 lb.

Further details may be obtained from Lancer's Machinery Limited, 41, Knightsbridge, London, S.W.1.



Lightweight Winch

THE Woodfield P750 winch weighs 325 lb. and is designed to be easily portable. It is skid-mounted on a light-alloy fabricated main frame.

The power unit is a B.S.A. type GPL6 air-cooled single-cylinder petrol engine developing 4 b.h.p. at 300 r.p.m. at the power-take-off shaft at the continuous rating. The engine is manually started by means of a rope-pulley located at the front end of the crankshaft.

The drive to the drum is by a $\frac{1}{2}$ -in. pitch single-roller chain running on hardened-steel sprockets. The drive sprocket is fitted with a cone-type clutch faced with bonded asbestos and operated by hand lever which moves the drum into engagement on a spiral-threaded shaft. The drum brake is of the continuous-band type operated by foot-pedal, with a hand lever to hold the brake in the "on" position. Brake linings are riveted to the steel brake band.

The maximum working load is 750 lb., with a line speed of 100 ft. per min. The drum can accommodate 250 ft. of $\frac{1}{16}$ in. wire line. The overall length is 3 ft. 1 in., the width 2 ft. 7 in., and the height 1 ft. 11 in. with the clutch lever removed.

Further details may be obtained from Woodfield Rochester Limited, Frindsbury Works, Rochester, Kent.

Automatic X-ray Fluorescence Spectrometer

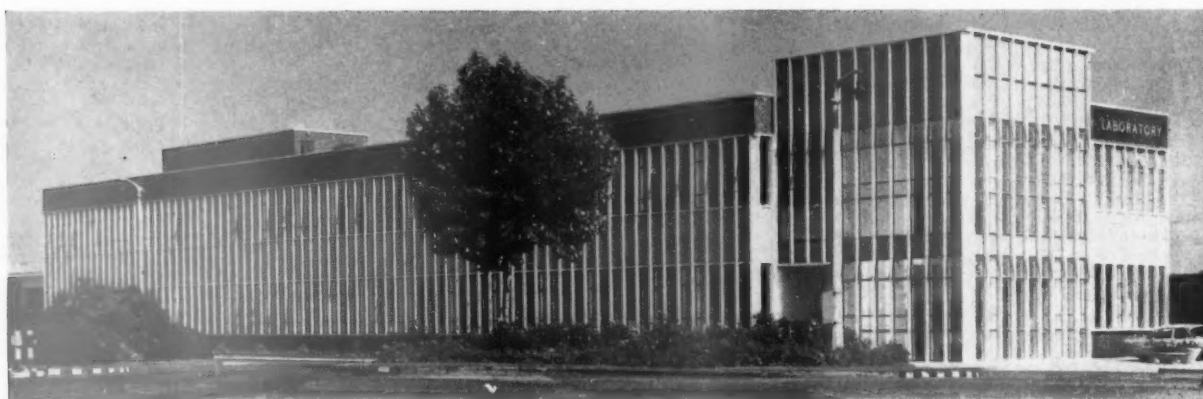
THE Hilger & Watts Fluorprint is a fully automatic X-ray fluorescence spectrometer, developed to analyse materials rapidly in a flexible routine. It is claimed that ease in changing from one analytical programme to another, high accuracy and sensitivity, and simplicity and reliability in operation are particular features of the instrument.

The instrument can deal with any element having an atomic number of 12 (magnesium) or higher, and can analyse up to 20 elements in one operation. It scans through the spectrum, and is programmed to stop at the appropriate angle for each element. The spectrometer is completely evacuated.

A ratio system is used and pulses are counted during the accumulation of a pre-set number of counts on the monitor. Scintillation and flow proportional counters are arranged to cover the whole range of an analysis, and no adjustment is needed. To change from one type of analysis to another, it is only necessary to pull out the plug-board and substitute another covering the required programme. An electric typewriter automatically prints the results obtained from the line intensities, and interpretation is claimed to be rapid and straightforward.

Further details may be obtained from Hilger & Watts Limited, 98, St. Pancras Way, Camden Road, London, N.W.1.





General view from south west of the new London Transport research laboratory at Chiswick

Opening of Central Research Laboratory for L.T.E.

Improved scientific services at Chiswick

The new research laboratory at Chiswick of the London Transport Executive, for which plans were described in our September 25, 1959, issue, was opened on December 5 by Mr. A. B. B. Valentine, Chairman of the L.T.E.

In an editorial note last week we referred to the great variety of scientific work which it has become possible to perform at Chiswick under one roof. This week, on page 714, there is an illustrated description of the largest item of plant installed, an axle-fatigue testing machine which is the only one of its kind in Britain.

Economies Achieved

At the opening ceremony, Mr. Valentine said that the new building had been provided as a result of the Executive being confident that an expansion of its scientific activities would lead to further economies than those obtained so far. As an example of recent results achieved, he stated that the entire cost of construction and equipment for the laboratory had been more than covered by the saving in fuel costs in one year alone, resulting from pioneer work by the staff which had led to the adoption of low-viscosity oil for the diesel engines of buses and the use

of improved grades of oils for rear axles. The annual saving far exceeded the running cost of the laboratory.

Forty Years' Struggle

Mr. Valentine also referred to the continuous struggle during the past 40 years to meet the need for scientific research and to the important part played by the staff in ensuring the safety and comfort of those who used public transport in London. He expressed strong belief that only scientists, technologists, and technicians who were a part of London Transport, with an intimate knowledge of the job and of the background and history of the problems requiring solution, could give the specialised help required by the engineering departments.

Those present at the ceremony included:—

London Transport Executive:

Mr. A. H. Grainger, Deputy Chairman & Managing Director; Messrs. Anthony Bull, L. C. Hawkins, S. H. Leake, Members. Messrs. A. A. M. Durrant, R. J. Hitchcock, S. G. Jones, A. W. Manser, F. G. Maxwell, Dr. L. G. Norman, Messrs. E. C. Ottaway, T. S. Pick, R. M. Robbins, F. H. Spratling, Chief Officers. Messrs. A. G. Collings, H. F.

Hutchison, C. A. Lyon, F. D. Rose, K. J. H. Seymour, H. E. Styoes, J. W. Wicks, A. T. Wilford.

British Transport Commission:

Messrs. C. C. Inglis, J. Ratter, G. F. Sinclair, B.T.C. Technical Committee. Dr. F. T. Barwell, Messrs. I. Campbell, A. C. Edmonston, J. T. Evans, S. P. Smith, B.T.C. Research Co-ordination Committee. Professor J. Allen, Dr. F. E. Jones, Professor R. V. Jones, Sir William Stanier, Professor A. Tustin, B.T.C. Research Advisory Council.

Also present were Mr. B. R. Dudley, Sir John Elliot, Sir Charles Goodeve, Mr. F. A. A. Menzler, Dr. J. A. Pope.

E.A.R. & H. Staff

The lower illustration on this page shows a group of officers of the East African Railways & Harbours Administration.

Back Row (standing): Messrs. E. J. A. Kane, Contracts Officer & Chief Quantity Surveyor; J. Waldmann, District Engineer, Dodoma; C. J. Crowe, Architect; W. R. McNiece, Acting Engineering Accountant; E. H. V. Walter, Land Planner; A. F. Bellman, District Engineer, Mombasa; W. P. A. Fraser, Senior Assistant Architect; K. E. E. Miller, District Engineer, Eldoret; C. S. Gherie, District Engineer; P. L. A. Marsh,



Group of East African Railways & Harbours staff

District Engineer, Tanga; R. T. Webb, Resident Engineer, Soroti/Lira Construction; N. H. Cour-Palais, Assistant Engineer Headquarters.

Centre Row (standing): Messrs. D. C. Maxwell, Administrative Assistant; L. J. Godfrey, Signal Engineer; J. Erby, Assistant Design Engineer; P. Wurzel, Design Engineer; D. Allardice, Resident Engineer Mnyusi/Ruvu Construction; W. P. Shanahan, District Engineer, Tabora; J. A. Guilleret, Assistant Signal Engineer; W. H. B. Mitchell, Permanent Way Engineer; C. J. R. Cobbett, District Engineer, Nakuru; S. T. Kingswell, District Engineer, Nairobi; R. M. Dewar, Plant & Workshop Engineer; J. M. Lyden, Assistant Engineer (Mechanical); T. G. Lovering, Estate & Rating Surveyor.

Front Row (sitting): Messrs. C. W. Pugh, Research Engineer; L. G. Dorman, District Engineer, Kampala; J. M. Fogarty, Assistant Construction Engineer; C. G. H. Rodger, Assistant Chief Engineer Administration; J. M. Kesson, Assistant Chief Engineer (Technical); C. T. Henfrey, Chief Engineer, who has since retired—he has been succeeded by Mr. Kesson; G. P. G. Mackay, Acting General Manager; P. H. Hicks, Assistant Chief Engineer (Construction); T. W. Eydes, Works Engineer; W. B. Canning, Acting Planning Engineer; H. C. Murrell, District Engineer, Dar-es-Salaam, and J. G. Jackson, Resident Engineer, Jinja—Bukonte Construction.

North Eastern Region Open Forums

Public Relations Experiment Repeated

In Huddersfield, Bradford, Leeds, and more recently in Middlesbrough, the North Eastern Region of British Railways has held open forum meetings to tell the public about railway modernisation plans, particularly in so far as they affect the local public, and answer on-the-spot questions and criticisms.

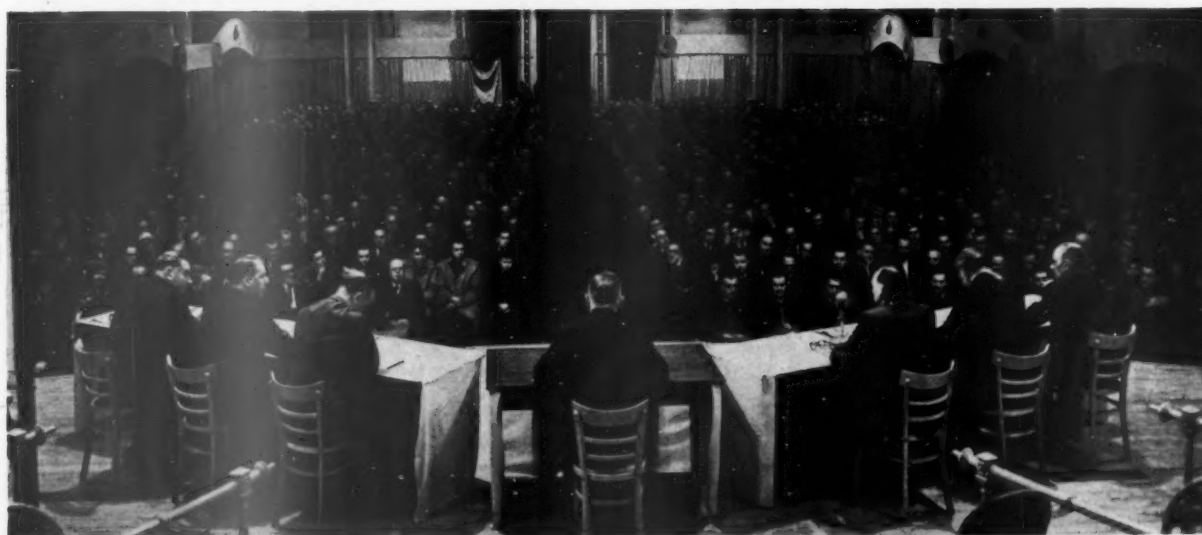
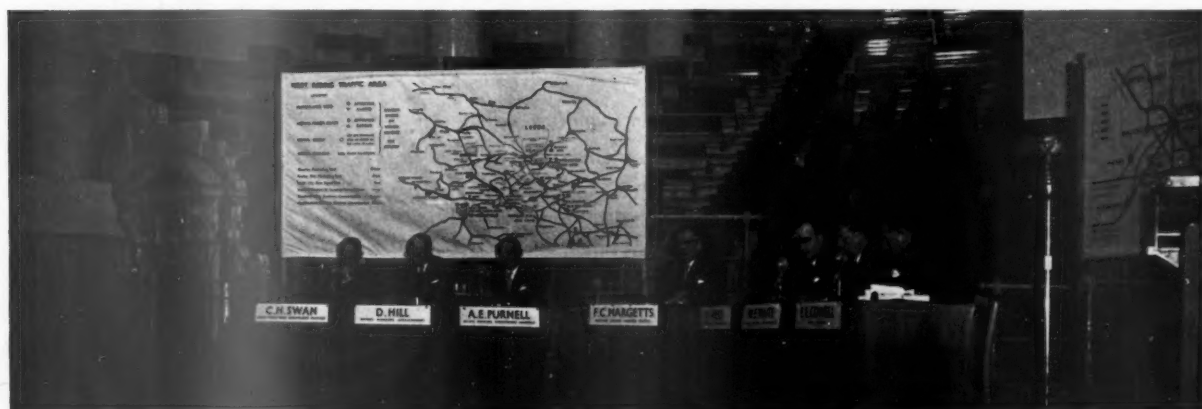
The pattern of the meetings has varied slightly, but in general has included the showing of the British Transport Commission film, "Report on Modernisation," a talk on general and local modernisation plans and progress, and a free-for-all session during which questions from the body of the hall have been answered by the Traffic Manager and his District Officers.

At Leeds, the chair was taken by Mr. F. C. Margetts, Assistant General Manager (Traffic). The chief speaker was Mr. E. E. Cowell, Traffic Manager (West Riding), and the supporting "brains trust" panel consisted of Messrs. C. Ayers, District Goods Superintendent; D. Hill, District Passenger Superintendent; W. E. Waite, District Operating Superintendent; C. H. Swan, District Motive Power Superintendent (Wakefield), and A. E. Purnell, District

Operating Superintenden (Wakefield).

The forum opened with a half-hour talk by Mr. Cowell, who spoke of the West Riding passenger revenue of £2 to £3 millions a year, the £1½ million worth of parcels carried on the Riding's railways annually, the £2½ million worth of ordinary merchandise, and the £13 million worth of coal and coke. Mr. Cowell reviewed progress with marshalling yards, diesel and freight depots, and so on. During next year, he said, Leeds would see the new Hull-Leeds-Manchester-Liverpool express service, new Pullman cars on the Yorkshire Pullman and more fast freight trains. There would also, he said, be a new, fast, businessmen's express which would carry passengers from Leeds to London at such a speed that railways would be able to compete with the Yeadon air services. Taking into account the road journeys at each end from airport to city centre, it would be quicker by rail, said Mr. Cowell.

The questions varied from, "What are you doing to drive the coal lorries off the road" to "Why are relief crews not standing by in case a train driver falls ill?" These,



North Eastern Region Open Forum at Leeds—(above): audience's view of the panel of experts; (below): the packed hall (see also editorial this week)

and about 25 other questions, were answered in about an hour and a quarter, before the chairman declared the meeting closed.

Parliamentary Notes

Problems of Transportation

The House of Lords had, on December 7, a debate on the problems of transportation for fully six hr. The whole discussion had a more or less party political bias.

Lord Morrison, initiating as calling attention to "the present and future problems of transportation," said that when he was Minister 30 years ago he was well served by an excellent staff headed by Sir Cyril Hurcomb (now Lord Hurcomb). It was necessary to try and have an unbiased outlook as between road and rail, and partly because of those employed in each industry he was keen on the Transport Act, 1947. He wanted to mix up between rail and road. It was a bad thing that men should be railwaymen all their lives or roadmen all their lives. He should like to switch them about. It would be wise if the Government should not try to segregate road and rail too much, but should try to use both to the greatest co-ordinated and integrated advantage in the general public interest—a system whereby some goods went by road alone and some by rail alone, but also a system that should provide that freight may be picked up by a road vehicle in a container that could be lifted and dropped on a railway truck at a suitable railway point.

If the Labour Government had delayed the Transport Act of 1947 for another five, or even 10, years, the railways would have been bankrupt and "we could have got them much cheaper."

Government's Financial Onus

Lord Morrison, turning to finance, said he much preferred public-owned corporations paying their way, taking one year with another, but they had to face the fact that British Railways were in a difficult financial position, and the question was whether they could get some *ad hoc*, special reliefs to the railways, somewhat analogous, if possible, to what was done for road commercial transport.

The Government paid for trunk road construction, and Lord Morrison thought there was a case for the Government to pay for modernisation as a big national operation. Was there not also a case for treating main line permanent way as a Class I road or as a Class II road and treating branch lines as Class II or Class III roads?

Lord Morrison concluded by quoting speeches of Mr. Marples in favour of road transport.

Irresponsible Charges

Lord Chesham, Joint Parliamentary Secretary, Ministry of Transport said that what the Government's proposals might be they would be able to find out shortly from the White Paper to be issued shortly. Lord Morrison would be able to judge whether the whole thing was such a miserable job as he seemed to think. It was easy to make irresponsible charges, and those made against the Minister were not true.

"My right hon. Friend (Mr. Marples)," added Lord Chesham, "believes that a railway system of the proper size should continue to play an important and substantial part in our transport system, but he also firmly believes that it must be a system which will meet our needs as they are today and not as they were 50 years ago and which will meet them economically and efficiently. What has governed the Minister's attitude

towards the railways is certainly not anti-path but is common sense and realism."

The Earl of Stanhope, who said he agreed with some of the things Lord Morrison had said, but others he heard with horror, complained about the closure of branch lines as throwing more traffic on the roads.

Earl Baldwin of Bewdley, in a maiden speech, said that his grandfather, father, and he himself for a short time had been directors of the old Western Railway. The cause of the railways being very, very sick was neither private ownership nor nationalisation. All he could hope for was that the country would be given as a transport system the swiftest, the surest, and the cheapest form of freight transport for the benefit of trade and industry.

Not Used to Capacity

The Earl of Lucan said that the railway system was not being used to its fullest capacity. The Ministry should have an intelligence staff, an economic staff to decide what means are the most suitable and efficient for moving traffic.

Lord Hawke said that the railways' attitude was too apologetic. It was a miracle the public had a service at all considering the type of engineering works they had to carry out.

Lord Stonham, Chairman of the Road & Rail Association, said that an essential element in the relief of road congestion was the provision of a first-class modernised railway system. It was false economy to rob the allocations of one in order to speed up the development of the other.

Lord Forbes said the Minister of Transport must give a rough overall movement picture before any detailed plans could be worked out by those responsible for the various transport systems.

Lord Citrine said he regarded electrification as an essential feature of the modernisation plan, and would accuse the B.T.C. of an over-cautious approach to this problem.

Lord Merrivale complained of electrification schemes being held up by the Ministry.

Lord Burden said he was bound to say, from his contact with railwaymen, that the attitude of the Minister towards the railways did not inspire confidence. Again, what confidence could leading firms in electrical engineering have in a Government which played about with them.

No Intent to Interfere

Viscount Simon said that, unlike Lord Burden, he did not believe that the small group with which the Minister was surrounding himself was intended to interfere with the day-to-day running of the railways. There was a good deal of political argument from both sides.

Lord Latham said that Lord Chesham, as the Ministry's spokesman, had stated very little to bring comfort to those who were concerned about the state of our inland transport. This chopping-and-changing of the Government on transport policy was not only disturbing to but distorting to industry as well as to the railways themselves.

Having spoken at length of the financial situation of the railways, Lord Hailsham said:—

"The structure will be, and has been, investigated, and we will pronounce our policy very shortly.

"On any question of detail I must ask the noble Lords to await the White Paper. On matters of principle, I said that we will not depart from the principles of public ownership. That is a general observation. It does not mean that nothing whatever can ever be disposed of. I do not know what would happen in that event. We will handle the question of the finance and the financial structure which burdens the railways and

we will free the railways, I expect, from a good many of the restrictions to which noble Lords have referred, although it would be quite improper for me to enter into any detail."

Lord Morrison said he was disappointed about Lord Hailsham's winding-up speech. There was nothing constructive in it. He made much of the fact that the deficit on the railways had been increasing as a whole, steadily year by year. It was an interesting reflection that the longer this Government remained in office the more money the railways lost. He believed that the Government had pursued policies calculated to damage the finances of the railways. They took away the profitable commercial transport, or a lot of it. They incited and encouraged all the competition they could manoeuvre on to the roads.

Contracts and Tenders

The British Transport Commission, South Wales Docks, has placed the following contracts:

G. Tate & Son Ltd.: construction of timber dolphin, Port Talbot Docks lock entrance

Fairwater Construction Limited: realignment of road to South Dock, Newport Docks.

British Railways, Eastern Region, has placed the following contracts:—

Cleveland Bridge & Engineering Co. Ltd.: reconstruction of footbridge No. 15A at Holmes Station (closed), No. 36 at Shirebrook North Station, and No. 123A between Killamarsh West (closed) and Woodhouse Mill (closed)

Thos. W. Ward Limited: supply and delivery of diesel crawler tractor with bulldozing equipment

Thomas Fletcher & Co. Ltd.: repairs to roof of west side offices at Kings Cross Station

Ericsson Telephones Limited: supply and installation of train describer equipment between Shenfield and Colchester

Falk, Stadelmann & Co. Ltd.: supply and delivery of train indicators for 18 stations on the London, Tilbury & Southend Line

Gee, Walker & Slater Limited: reconstruction of station at Netherfield & Colwick

George Simpson (London) Limited: reconstruction of locomotive shed roof at Langwith Motive Power Depot

Yorkshire Hennebique Contracting Co. Ltd.: reconstruction of the jetty and the provision of foundation for a new wagon tippler at Keadby

Geo. Longden & Son Ltd.: construction of temporary maintenance and fuelling facilities for diesel locomotives together with ancillary works at Darnall Motive Power Depot, Sheffield

Harland & Wolff Limited: alterations to deck of pontoon at Gravesend Town Pier

Kirk & Kirk Limited: demolition of existing buildings, construction of new booking hall, ticket office, waiting rooms, and other works at Bishops Cleeve Station

Haines & Sheppard Limited: supply and installation of concrete lighting columns together with electrical installations on 50 ft. lighting towers, sand bunkers, fuelling awnings and sand house at Stratford Motive Power Depot

Carter-Horsley (Engineers) Limited: repairs to underline bridge No. 3 between Killamarsh and Waleswood.

Notes and News

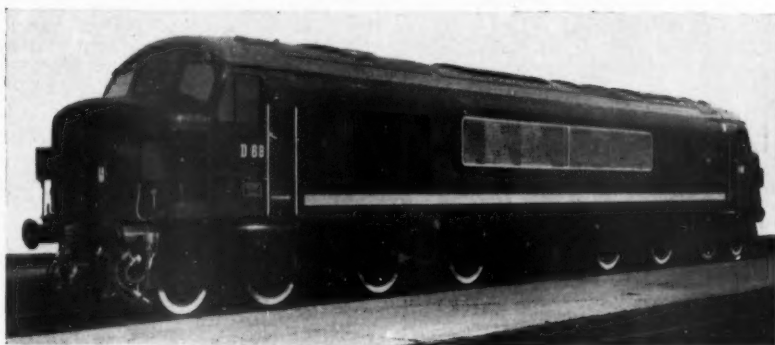
N.U.R. to Increase Weekly Subscriptions.—The National Union of Railwaymen is to increase members' weekly subscriptions from 9½d. to 1s. 3d. from next year.

Institute of Transport Meeting.—The annual general meeting of corporate members of the Institute of Transport, will take place at 5.45 p.m. on December 19, 1960, at 80, Portland Place, London, W.1, when the annual report and accounts for the year 1959-60 will be presented.

Channel Tunnel Progress.—The Channel Tunnel Study Group has stated that a start can be made on the tunnel without the financial backing of the British and French Governments. It believes it can begin the project entirely out of private finance, if the Governments approve. In reports to Ministries on both sides of the Channel, the Group has withdrawn clauses that would have involved the Governments and railways in helping to pay for the scheme. These clauses asked for Government guarantees to meet the extra cost of any major unexpected difficulties and lease payments by their respective railways. They also proposed that the railways should pay for the building of tunnel terminals.

Celebrating Messrs. Sandberg's Centenary.—The illustration on this page shows Mr. A. H. Cantrell, Chief Civil Engineer, British Railways, Southern Region, and Mr. F. E. Campion, formerly Chief Civil Engineer of the Southern Region, at a cocktail party last week to celebrate the centenary of Messrs. Sandberg, the consulting, testing, & inspecting engineers of 40, Grosvenor Gardens, London, S.W.1. Editorial reference to the centenary was made in last week's issue.

Institution of Locomotive Engineers Papers on Diesel Lubricating Oils.—At a general meeting of the Institution of Locomotive Engineers to be held at the Institution of Mechanical Engineers in London on January 17, 1961, at 5.30 p.m., two papers on the subject of lubricating oils for locomotive



British Railways Type "4" 1Co-Co1 diesel-electric locomotive No. D68, the first of this design to be built at Crewe

diesel engines will be presented and discussed. These are "Spectrographic analysis of crankcase lubricating oils as a guide to preventative maintenance of locomotive diesel engines," by Mr. G. M. Barrett of the Shell International Petroleum Co. Ltd., and "Control of quality of crankcase lubricating oils of locomotive diesel engines in service," by Mr. S. Bairstow, Research Department, Chemical Services, British Railways Division, British Transport Commission, Derby.

Crewe-Built Type "4" Diesel Locomotives.—The first 10 Sulzer-engined Type "4" diesel-electric main-line locomotives for British Railways were built at Derby Works, London Midland Region, where the design and development work took place. Batch production is continuing there with another 57 similar units with power increased from 2,300 b.h.p. to 2,500 b.h.p. In addition, Crewe Works, London Midland Region, has on order 80 of the same design of locomotive. Each of these works recently completed the first Type "4" of the latest series for which it is responsible, Nos. D11 and D68 respectively. The accompanying illustration shows the Crewe-built locomotive. Crompton Parkinson electrical equipment is installed and the Sulzer 12LDA28-B 12-cylinder turbo-charged

double-back engine has a mild degree of charge-cooling for which the duplication of water pumps and pipework has been ingeniously avoided. The rated maximum engine speed remains at 750 r.p.m. as for the original version of this locomotive design described in our May 1, 1959, issue. Sulzer 12LDA28-B engines also will power 66 further Type "4" locomotives, and will be supplied to British Railways by the Brush Electrical Engineering Co. Ltd. with electrical equipment of that make. With this order, which was recorded in our July 1, 1960, issue, the total of double-bank engines for British Railways, supplied and on order, amounts to 213 units.

Annual Report on Road Accidents.—The annual report on Road Accidents (price 5s.), which is issued by the Ministry of Transport & Scottish Home Department, is available through H.M. Stationery Office.

The Roadrailer Demonstrated in Scotland.—The Pressed Steel Co. Ltd., Roadrailer, a freight vehicle designed to be hauled by lorry or train, was demonstrated on December 6 in Scotland for the first time. The Roadrailer is aluminium built and incorporates the minimum of equipment to render it suitable for either road or rail movement. It is designed to travel up to 70 m.p.h. with a payload of 11 tons and a carrying capacity of 1,400 cu. ft. Full reference to the development and testing of the Roadrailer was made on page 304 of our September 9 issue.

Roadrailer Demonstrated in Leeds.—Today (Friday) will be fifth and last day on which a series of demonstrations of the Roadrailer prototype rail-and-road vehicle is being given at Hunslet Lane Goods Station, Leeds, British Railways, North Eastern Region. Demonstrations will take place at half-hourly intervals from 10.15 a.m. to 12.15 p.m. and from 2 p.m. to 4 p.m. Each will show the complete process of detaching the Roadrailer semi-trailers from a train in the siding, driving with them behind British Road Services road-motor tractor units, and transferring them back into the train. One complete cycle takes only a few minutes.

Christmas Travel in the London Midland Region.—Over 450 extra main-line express trains will be run by the London Midland Region of British Railways, to carry Christmas holiday travellers. One hundred and sixty-two will run to and from Euston, the Midlands and the North, and 90 to and from St. Pancras. Heaviest day is December 23, when 133 extra trains will operate. To cope with the Christmas parcels and Royal Mail traffic the London Midland Region is, in addition, running 1,500 extra parcels trains between December 5 and 25. Twenty-one additional steamer sailings to and from Eire



Photo

[The Consulting Engineer

Mr. F. E. Campion, left, and Mr. A. H. Cantrell, at Messrs. Sandberg's centenary celebrations

and Northern Ireland will be run during the holiday period between December 17 and January 6, 15 between Holyhead and Dun Laoghaire and six between Heysham and Belfast.

London Midland Region Concert.—London Midland Region (London) Orchestral Society of British Railways held a concert at St. Pancras Town Hall last Wednesday. George Kirby was the soloist in Beethoven's Concerto for pianoforte and orchestra No. 2 in B Flat, Opus 19. The London Midland Region (London) orchestra conducted by Mr. J. Grindley, leader, Mr. G. Elmitt, played selections from "Lilac Time," "Perchance to Dream," "Coriolanus," "The Vagabond King," and "The Sylvia Ballet."

F.B.I. Delegation to Nigerian Industrial Development Conference.—The Federation of British Industries has announced the composition of the delegation which it is sending to Nigeria in January to take part in a Nigerian Industrial Development Conference. The delegation includes representatives from the iron and steel, chemical, and cable making industries. Mr. F. Erroll, Minister of State, Board of Trade, who will be visiting Nigeria during this period, will attend meetings of the conference. The F.B.I. delegation is expected to leave for Lagos on January 12 and to return on January 31. While in Nigeria, parts of the delegation will tour each of the three Regions, after which the conference itself will take place in Lagos.

Responsibility for Railway Embankment Disputed.—A dispute concerning claims made by householders for compensation for damage caused by a former railway embankment at Forest Hill, south London, from which earth is slipping into the gardens of neighbouring properties, involves British Railways, Southern Region, and the London County Council. The embankment, owned by British Railways until the line it carried was closed and the land became L.C.C. property last year, began to slip 19 months ago. Since that time the householders whose properties have been affected have been seeking compensation. The L.C.C. denies responsibility as the embankment began to encroach on the gardens while it was still in the possession of the British Transport Commission.

Withdrawal of Passenger Facilities from Morley Top Station.—British Railways, North Eastern Region, has announced that because of the loss which is being incurred, passenger train facilities will be withdrawn from Morley Top Station, on the Bradford—Wakefield line, on January 2, 1961. Approval for this measure has been given by the Transport Users' Consultative Committee for the Yorkshire Area and the Central Transport Consultative Committee. Alternative facilities for passengers are provided by the bus services operated by Leeds Corporation Transport, the Yorkshire Woollen District Transport Company and the West Riding Automobile Co. Ltd. There will be no change in the present arrangements for the collection and delivery of parcels traffic by British Railways' road motor based at Batley. Parcels traffic not requiring cartage by British Railways will be dealt with at Morley Low Station. Freight traffic will continue to be dealt with at Morley Top Goods Depot.

North Eastern Region Open Forum.—On December 6, at 7.0 p.m., the North Eastern Region of British Railways held an Open Forum in the Crypt of the Town Hall at Middlesbrough. It was the second of a new series of meetings which the Region intends to hold in various important centres during the coming months in an

attempt to tell the public about modernisation plans and their effect on services. The chair was taken by Mr. F. C. Margetts, Assistant General Manager (Traffic), for the Region, and the speakers included Mr. K. A. Kindon, Traffic Manager (Tees-side). Two successful meetings were held at the beginning of this year in Huddersfield and Bradford and again in Leeds last week.

The "Blue Pullman" Delayed.—A jack left by a gang of workmen on the British Railways, Western Region, London-Bristol line caused the new diesel train, the "Blue Pullman," to break down on December 5 at Swindon, Wiltshire. The jack fractured the fuel tank and the train had to be towed into Swindon Junction station by a steam locomotive.

Western Region Station to Close.—British Railways, Western Region, has announced the closure of Cambrea Station on January 2, 1961. Passenger trains will cease to call and facilities for the handling of parcels traffic will also be withdrawn. The goods depot at the station will be reduced to a public siding for the handling of freight in truck loads only for collection by consignees.

Railway Stock Market

Despite the reduction in bank rate from 5½ per cent to 5 per cent, which it is assumed was made mainly to help relieve pressure on the dollar, stock markets remained depressed. British Funds, which normally rise in price after a lower bank rate, have eased afresh and industrial shares again lost some ground. Buyers have been showing a great deal of caution because it is felt that market may not rally strongly until export trade figures make a better showing, and because pessimists are saying that unless we sell more abroad, our gold reserves may fall in the next few months and then the next change in bank rate could be upwards. It is generally believed that the outlook should be easier to assess early in the new year.

Movements among foreign funds were small with Antofagasta ordinary stock maintained on balance at 18, though the preference stock lost half-a-point at 34½; the 4 per cent perpetual stock was 48½ xd. Chilean Northern 5 per cent first debentures changed hands at 53. Costa Rica ordinary stock was 35½ with the 6½ per cent first debentures 97. Guayaquil & Quito assented bonds were again 62½, and in other directions, Paraguay Central prior debentures were quoted at 13, but have shown business up to 14½.

Brazil Railway bonds were 5½. Mexican Central "A" bearer debentures continued at 60, and San Paulo Railway 3s. units again had a quotation of 1s. International of Central America common shares were 19 with the preferred stock down to \$10½.

Canadian Pacifics at \$38½ moved fractionally lower, but the preference stock improved to 59, and the 4 per cent debentures remained at 60½. White Pass shares were better at \$10. Elsewhere, however, Nyasaland Railways shares were easier at 9s. with the 3½ per cent debentures 39½. West of India Portuguese capital stock was quoted at 110½ and Barsi ordinary stock at 17½.

Among shares of locomotive builders and engineers, Beyer Peacock 5s. shares eased slightly to 6s. 1½d., and Charles Roberts 5s. shares to 8s. 3d. Westinghouse Brake lost 1s. at 39s. with the reactionary trend in stock markets, while Birmingham Wagon came back to 28s. North British Locomotive shares were 6s. 6d., Wagon Repairs 5s. shares after 19s. 3d. receded to 18s. 9d. and Gloucester Wagon 10s. shares kept at 9s. 10½d. G. D. Peters were 15s. 7½d. Sellers predomi-

nated among electricals, A.E.I. easing to 39s. 9d. a new low for the year at which there is a yield of over 7½ per cent. English Electric at 31s. yield over 6½ per cent on last year's 10 per cent dividend, and the yield on G.E.C. at 30s., is 6½ per cent. Shares prices have moved back mainly because few buyers are about; selling has not been heavy. Vickers came back to 27s. 9d. and yield over 7 per cent. Broom & Wade 5s. shares held steady at 22s. 3d. T. W. Ward at 64s. 6d., failed to keep an earlier gain, though elsewhere, Stone-Platt shares at 54s. 9d. were well maintained in balance.

Pressed Steel 5s. shares were 27s. and Dowty Group 10s. shares 32s. 3d. Leyland Motors, following the directors' higher dividend forecast and the bid for Standard-Triumph International, rose sharply to 90s. 6d., but have since reacted to 82s. 3d. Steel shares fluctuated. United Steel declined to 76s. despite the higher dividend and proposed free scrip and rights issues, though Steel of Wales touched 43s. 9d.

Forthcoming Meetings

December 16 (Fri.).—The Institute of Transport, South Wales & Monmouthshire Section, at High Street Station Restaurant, Newport, at 6.30 p.m. "The Progress and Development of work study in the B.T.C.," by Mr. E. J. Larkin.

December 16 (Fri.).—The Institute of Transport, Tees-side Section, at the Cleveland Scientific and Technical Institution, Middlesbrough, at 6.30 p.m. "That the Provision of Subsidies for Rural Transport is in the Best Interests of the Economy of the Country as a whole" debate.

December 17 (Sat.).—The Permanent Way Institution, East Anglia Section, at Norwich, at 2.15 p.m. Quiz.

December 19 (Mon.).—The Institution of Mechanical Engineers, at 1, Birdcage Walk, London, S.W.1, at 6 p.m. Steam Group Discussion. "Safety on Construction Sites."

December 19 (Mon.).—The Institute of Transport, at 80, Portland Place, London, W.1, at 5.45 p.m. Annual General Meeting of Corporate Members.

December 21 (Wed.).—Society of Chemical Industry, Corrosion Group, 14, Belgrave Square, London, S.W.1, at 6 p.m. A Discussion of Practical Problems.

December 28 (Wed.).—The Institute of Traffic Administration, Devon & Cornwall Section, at the South Western Gas Board Theatre, Plymouth, at 7.15 p.m. "Machines and Men in Management," Mr. J. W. Dean.

OFFICIAL NOTICES

Foreign Employment ROADMASTER

ENGINEERING GRADUATE preferred; minimum of two years engineering training essential.

Require two years varied railroad engineering service, or five years in direct charge of track crews. Will supervise 135 men maintaining 45-mile railroad assign work, order materials, be responsible for safety, make regular detailed inspections of roadbed and all track on main line, sidings and yards, bridges, tunnels, etc. Will make engineering calculations relating to maintenance and use of structure and equipment. Must speak Spanish. Married or single candidates acceptable.

Excellent opportunity large copper company, Chile, South America. Two year contract with transportation both ways for you and family. Basic salary \$525.00 to \$650.00 per month depending upon age and experience of applicant.
Box 6, The Railway Gazette, 33 Tothill Street, S.W.1.

and Northern Ireland will be run during the holiday period between December 17 and January 6, 15 between Holyhead and Dun Laoghaire and six between Heysham and Belfast.

London Midland Region Concert.—London Midland Region (London) Orchestral Society of British Railways held a concert at St. Pancras Town Hall last Wednesday. George Kirby was the soloist in Beethoven's Concerto for pianoforte and orchestra No. 2 in B Flat, Opus 19. The London Midland Region (London) orchestra conducted by Mr. J. Grindley, leader, Mr. G. Elmitt, played selections from "Lilac Time," "Perchance to Dream," "Coriolanus," "The Vagabond King," and "The Sylvia Ballet."

F.B.I. Delegation to Nigerian Industrial Development Conference.—The Federation of British Industries has announced the composition of the delegation which it is sending to Nigeria in January to take part in a Nigerian Industrial Development Conference. The delegation includes representatives from the iron and steel, chemical, and cable making industries. Mr. F. Erroll, Minister of State, Board of Trade, who will be visiting Nigeria during this period, will attend meetings of the conference. The F.B.I. delegation is expected to leave for Lagos on January 12 and to return on January 31. While in Nigeria, parts of the delegation will tour each of the three Regions, after which the conference itself will take place in Lagos.

Responsibility for Railway Embankment Disputed.—A dispute concerning claims made by householders for compensation for damage caused by a former railway embankment at Forest Hill, south London, from which earth is slipping into the gardens of neighbouring properties, involves British Railways, Southern Region, and the London County Council. The embankment, owned by British Railways until the line it carried was closed and the land became L.C.C. property last year, began to slip 19 months ago. Since that time the householders whose properties have been affected have been seeking compensation. The L.C.C. denies responsibility as the embankment began to encroach on the gardens while it was still in the possession of the British Transport Commission.

Withdrawal of Passenger Facilities from Morley Top Station.—British Railways, North Eastern Region, has announced that because of the loss which is being incurred, passenger train facilities will be withdrawn from Morley Top Station, on the Bradford—Wakefield line, on January 2, 1961. Approval for this measure has been given by the Transport Users' Consultative Committee for the Yorkshire Area and the Central Transport Consultative Committee. Alternative facilities for passengers are provided by the bus services operated by Leeds Corporation Transport, the Yorkshire Woollen District Transport Company and the West Riding Automobile Co. Ltd. There will be no change in the present arrangements for the collection and delivery of parcels traffic by British Railways' road motor based at Batley. Parcels traffic not requiring cartage by British Railways will be dealt with at Morley Low Station. Freight traffic will continue to be dealt with at Morley Top Goods Depot.

North Eastern Region Open Forum.—On December 6, at 7.0 p.m., the North Eastern Region of British Railways held an Open Forum in the Crypt of the Town Hall at Middlesbrough. It was the second of a new series of meetings which the Region intends to hold in various important centres during the coming months in an

attempt to tell the public about modernisation plans and their effect on services. The chair was taken by Mr. F. C. Margetts, Assistant General Manager (Traffic), for the Region, and the speakers included Mr. K. A. Kindon, Traffic Manager (Tees-side). Two successful meetings were held at the beginning of this year in Huddersfield and Bradford and again in Leeds last week.

The "Blue Pullman" Delayed.—A jack left by a gang of workmen on the British Railways, Western Region, London-Bristol line caused the new diesel train, the "Blue Pullman," to break down on December 5 at Swindon, Wiltshire. The jack fractured the fuel tank and the train had to be towed into Swindon Junction station by a steam locomotive.

Western Region Station to Close.—British Railways, Western Region, has announced the closure of Carnbrea Station on January 2, 1961. Passenger trains will cease to call and facilities for the handling of parcels traffic will also be withdrawn. The goods depot at the station will be reduced to a public siding for the handling of freight in truck loads only for collection by consignees.

Railway Stock Market

Despite the reduction in bank rate from 5½ per cent to 5 per cent, which it is assumed was made mainly to help relieve pressure on the dollar, stock markets remained depressed. British Funds, which normally rise in price after a lower bank rate, have eased afresh and industrial shares again lost some ground. Buyers have been showing a great deal of caution because it is felt that market may not rally strongly until export trade figures make a better showing, and because pessimists are saying that unless we sell more abroad, our gold reserves may fall in the next few months and then the next change in bank rate could be upwards. It is generally believed that the outlook should be easier to assess early in the new year.

Movements among foreign rails were small with Antofagasta ordinary stock maintained on balance at 18, though the preference stock lost half-a-point at 34½; the 4 per cent perpetual stock was 48½ xd. Chilean Northern 5 per cent first debentures changed hands at 53. Costa Rica ordinary stock was 35½ with the 6½ per cent first debentures 97. Guayaquil & Quito assented bonds were again 62½, and in other directions, Paraguay Central prior debentures were quoted at 13, but have shown business up to 14½.

Brazil Railway bonds were 5½. Mexican Central "A" bearer debentures continued at 60, and San Paulo Railway 3s. units again had a quotation of 1s. International of Central America common shares were 19 with the preferred stock down to \$101½.

Canadian Pacifics at \$38½ moved fractionally lower, but the preference stock improved to 59, and the 4 per cent debentures remained at 60½. White Pass shares were better at \$10. Elsewhere, however, Nyasaland Railways shares were easier at 9s. with the 3½ per cent debentures 39½. West of India Portuguese capital stock was quoted at 110½ and Barsi ordinary stock at 17½.

Among shares of locomotive builders and engineers, Beyer Peacock 5s. shares eased slightly to 6s. 1½d., and Charles Roberts 5s. shares to 8s. 3d. Westinghouse Brake lost 1s. at 39s. with the reactionary trend in stock markets, while Birmingham Wagon came back to 28s. North British Locomotive shares were 6s. 6d., Wagon Repairs 5s. shares after 19s. 3d. receded to 18s. 9d. and Gloucester Wagon 10s. shares kept at 9s. 10½d. G. D. Peters were 15s. 7½d. Sellers predomi-

nated among electricals, A.E.I. easing to 39s. 9d. a new low for the year at which there is a yield of over 7½ per cent. English Electric at 31s. yield over 6½ per cent on last year's 10 per cent dividend, and the yield on G.E.C. at 30s., is 6½ per cent. Shares prices have moved back mainly because few buyers are about; selling has not been heavy. Vickers came back to 27s. 9d. and yield over 7 per cent. Broom & Wade 5s. shares held steady at 22s. 3d. T. W. Ward at 64s. 6d., failed to keep an earlier gain, though elsewhere, Stone-Platt shares at 54s. 9d. were well maintained in balance.

Pressed Steel 5s. shares were 27s. and Dowty Group 10s. shares 32s. 3d. Leyland Motors, following the directors' higher dividend forecast and the bid for Standard-Triumph International, rose sharply to 90s. 6d., but have since reacted to 82s. 3d. Steel shares fluctuated. United Steel declined to 76s. despite the higher dividend and proposed free scrip and rights issues, though Steel of Wales touched 43s. 9d.

Forthcoming Meetings

December 16 (Fri.).—The Institute of Transport, South Wales & Monmouthshire Section, at High Street Station Restaurant, Newport, at 6.30 p.m. "The Progress and Development of work study in the B.T.C.," by Mr. E. J. Larkin.

December 16 (Fri.).—The Institute of Transport, Tees-side Section, at the Cleveland Scientific and Technical Institution, Middlesbrough, at 6.30 p.m. "That the Provision of Subsidies for Rural Transport is in the Best Interests of the Economy of the Country as a whole" debate.

December 17 (Sat.).—The Permanent Way Institution, East Anglia Section, at Norwich, at 2.15 p.m. Quiz.

December 19 (Mon.).—The Institution of Mechanical Engineers, at 1, Birdcage Walk, London, S.W.1, at 6 p.m. Steam Group Discussion. "Safety on Construction Sites."

December 19 (Mon.).—The Institute of Transport, at 80, Portland Place, London, W.1, at 5.45 p.m. Annual General Meeting of Corporate Members.

December 21 (Wed.).—Society of Chemical Industry, Corrosion Group, 14, Belgrave Square, London, S.W.1, at 6 p.m. A Discussion of Practical Problems.

December 28 (Wed.).—The Institute of Traffic Administration, Devon & Cornwall Section, at the South Western Gas Board Theatre, Plymouth, at 7.15 p.m. "Machines and Men in Management," Mr. J. W. Dean.

OFFICIAL NOTICES

Foreign Employment ROADMASTER

ENGINEERING GRADUATE preferred; minimum of two years engineering training essential.

Require two years varied railroad engineering service, or five years in direct charge of track crews. Will supervise 135 men maintaining 45-mile railroad assign work, order materials, be responsible for safety, make regular detailed inspections of roadbed and all track on main line, sidings and yards, bridges, tunnels, etc. Will make engineering calculations relating to maintenance and use of structure and equipment. Must speak Spanish. Married or single candidates acceptable.

Excellent opportunity large copper company, Chile, South America. Two year contract with transportation both ways for you and family. Basic salary \$525.00 to \$650.00 per month depending upon age and experience of applicant.

Box 6, The Railway Gazette, 33 Tothill Street, S.W.1.

